H2D

User Manual

Provisional version only (V1/English)

HASSELBLAD

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H2D

Congratulations!

Welcome to the Hasselblad H System.

The H2D adds the ability to utilize the latest advancements in digital backs, increased mobility, integrated power, and improved image quality. The H2D is the most advanced digital medium-format photography platform on the market today, and a worthy addition to the famed Hasselblad line.

The specifications and capabilities of the H system exceed the demands of most photographers. This allows the system to expand and develop. It's one of the reasons that so many professional photographers around the world are discovering, or re-discovering, the creative and professional possibilities provided by the Hasselblad system.

The H system is the result of the most intensive technical development programme ever undertaken by Hasselblad, the most prestigious medium-format camera manufacturer in the world. It reflects an unprecedented wealth of knowledge and experience tightly interwoven with the latest technological developments that combined to produce an unrivalled world-class creative tool for the discerning photographer.

Hasselblad had its beginnings during the last fifty years of the last millennium. Within twenty years it was present as mankind took the first small step on the moon. Now, Hasselblad makes its own giant leap forwards into the future. A new foundation on which to build, ensuring the utmost in image-quality, handling and versatility resulting from the most reliable and efficient solutions to meet photographers' expectations.

The H system presents a list of features coloured by superlatives. What was once considered optional is now integral. The potential of this outstanding professional equipment straight out of the box is tremendous.

But there is no trade-off in quality for the sake of the latest technology. The three pillars of the Hasselblad reputation remain: Reliability, Versatility, Interchangeability. Stainless steel and aluminium for no-nonsense professional use and durability. Silicon chip control for basic practical support as well as sophisticated facilities to meet all demands. A system to trust and build on, that will develop and grow in pace with tomorrow's discoveries.

The list of features is long, varied and comprehensive. For example: automatic focus with instant manual override, dot-matrix LCDs, rapid button and control wheel user interface, integral grip, integral fill-flash, very bright OLED on sensor unit, multi-mode exposure meter-

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ing, TTL flash control, capable of saving to internal CF cards and external storage devices, presentation of digital information such as histograms and grey balance on the LCD, extremely accurate electronic leaf shutter, flash sync at all shutter speeds to 1/800s, eyeline viewfinder with 100% view, dot matrix viewfinder LCD, lithium or rechargeable battery options, shutter speeds from 32 seconds to 1/800s, user customization of functions. And that's not all! Bracketing, interval timer, rapid access user button, flash measure, integral diopter adjustment in viewfinder, zone system capability, time-lapse photography, customized profiles and so on.

In addition, the H2D has a format allowing for digital capture with sensors more than twice the physical size of today's 35mm sensors. The sensor is therefore capable of using more and larger pixels, which secure a high-end image quality in terms of moiré free colour rendering without gradation break-ups in even the finest highlight areas or noise in the shadows.

And, apart from the practical aspects, the H2D also exudes a feeling of superb design and ergonomics that makes the camera a pleasure to own as well as use. For handling and convenience of use it is second to none.

So Hasselblad, the most distinguished pioneer in medium-format photography, yet again takes the vanguard position. We are confident that you are going to incorporate this camera inseparably into your photographic life. We are also confident that you are going to produce images you are proud of. Some of these will remain as a documentation of the history of our world, perhaps even beyond. That's how it is with Hasselblad.

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The primary goal of all camera development is of course the seamless and unobtrusive production of superb images, regardless of situation. The H2D has abilities and features that you may not think you need, yet. Each individual has their own way of working. But the H2D has tremendous scope for fine-tuning your technique possibly beyond your present ambitions .

The Quick Start Guide should have you up and running in minutes. The H2D will function equally well as an automatic point-and-shoot or as a total-control, ultra-professional instrument.

The user manual is intended to be the standard reference manual. In it you will find full user descriptions, LCD charts, specifications, etc.

Take your time to learn the intricacies and potentials of the H2D. Go at your own pace and explore the possibilities when you feel ready for the next step. Results will be good from the word go, that's guaranteed, but when you want to make improvements or work more efficiently perhaps, the H2D can provide support.

The supreme Hasselblad potential is there, it's up to you to exploit it!

Finally, please check occasionally on the Hasselblad website — www.hasselblad.com — for any updates regarding user instructions, changes, news, or other information concerning the H system. If you have no Internet access, please contact your Hasselblad dealer or distributor for the latest information.

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What's in the box

Your new Hasselblad camera may have been supplied in kit form or as separate items. There are a number of possible combinations depending on factors such as offers, bundles etc. Please ensure that all the items noted on the accompanying packing information have been supplied and are correct.

Contact your Hasselblad dealer or distributor immediately if anything is missing or seems faulty in any way, quoting the serial numbers and purchase details where appropriate.

Familiarise yourself with the various parts and components. Leave protective covers on as much as possible and avoid touching glass surfaces and inserting fingers into the camera body. The H2D has a robust construction and is capable of withstanding fairly rough treatment but nevertheless is a precision instrument and will serve you longer if treated with respect from the beginning.

Please keep purchase details and the warranty in a safe place.

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1 Quick Start

This section is a quick start guide to assembling and preparing your new H2D. From separate items, the assembly process should take no more than several minutes to complete and when the battery is charged you will be able to take simple and straightforward photographs immediately.

All the information is repeated later on in the manual, as well as much more in-depth information, under the relevant sections and headings for easier search access.

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H2D

An H2D can be used in a variety of ways but for simplicity's sake below is a description of how to use it with a CF card. Naturally you can skip this section if you wish and go directly to the appropriate section in this manual regarding tethered use etc.

1. *Remove the battery by depressing the battery holder button and simultaneously swinging the battery holder retaining lever down until it stops. Pull battery downwards.*
2. *Choose the appropriate plug for the charger.*
3. *Attach the chosen plug by sliding it into position, ensuring that the two electrical contact prongs on the charger correctly enter the two contact sockets on the plug attachment.*
4. *Insert the jack plug from the battery charger into the socket on the battery. Insert the battery charger into a standard (100–240V~ /50–60 Hz) domestic socket. Charge the battery until the red signal light on the charger flashes.*
5. *Holding the battery flat against the camera and aligning the two upper lugs with the slot, slide it back into position as far as it will go. Swing back the battery holder retaining lever until it clicks back into place.*
6. *Remove the front protective cover from the camera body by keeping the lens release button depressed and rotating the cover counter-clockwise until it is released.*
7. *Remove the lens shade by turning it clockwise.*
8. *Remove the rear lens cap by unscrewing it in a counter-clockwise direction.*
9. *Attach the lens to the camera body by firstly aligning the red index on the lens mount with the red index on the camera mount. Grip the lens by the metal barrel (not the rubber focusing ring) and turn it approximately one quarter turn clockwise until it clicks into place.*
10. *Remove the front lens cap by pinching together the two retaining clips and attach the lens shade to lens by aligning the indexes and turning the shade clockwise a quarter turn.*
11. *Remove the top protective cover from the viewfinder screen location on the camera body by lifting a corner.*
12. *Remove the protective cover from the viewfinder by depressing the viewfinder release button.*

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13. *While holding the viewfinder at a slight angle, locate the front section into place on the front edge of the viewfinder screen recess in the camera body ensuring the central locating lug and databus interface are positioned correctly. Swing the viewfinder downwards and press firmly until it clicks into place. Ensure that both sides of the viewfinder are seated correctly.*
14. *Point the camera at a smooth toned area. Turn the eyesight adjustment dial until you achieve optimum sharpness of the markings on the viewfinder screen.*
15. *Open the card-holder cover on the sensor unit by inserting your fingernail into the slot at the front of the door and swinging it open.*
16. *Hold the compact-flash card so that the connector holes face into the slot in the sensor unit, with the brand label facing in the same direction as the sensor unit preview screen.*
17. *Gently press the card into the slot. If you encounter resistance, it might be because you are holding the card backwards or upside down. Experiment until you find the orientation that allows the card to slide in easily.*
18. *When the card is able to drop very easily nearly all the way into the sensor unit, then you are doing it right. Once you have achieved this, press the card firmly into place until it sinks another couple of millimeters into the sensor unit and is held fast. Swing the side panel door shut again.*

.....

The camera is now complete. If you press the ON.OFF button A for half a second, the camera will activate. If the camera enters STANDBY mode (the LCD screen on the grip will show the H2D symbol only), reactivate it by pressing the shutter release button B halfway (or the ON.OFF button).

You can now explore the menus, buttons, control wheels, etc observing the changes on the LCD on the grip as well as the LCD in the viewfinder.

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19. *Click the ON.OFF button. The LCD then displays the Profile screen.*
20. *Turn either the front or rear control wheel until 'Standard' is highlighted.*
21. *Press the AF / Load button.*

That's it!

Your Hasselblad H2D is now operational in fully automatic mode. In average lighting conditions the camera will act as a point and shoot camera producing extremely fine results without the need to touch any other button than the shutter release!

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Familiarize yourself with the H2D

Take a few minutes to familiarize yourself with the H2D and its various controls. Note the difference between a long press, a short press and a 'click' with some buttons. For example from the main screen a click of the ON.OFF button will take you to Profiles while a longer press will turn the camera off.

With your right hand holding the ergonomic grip for security and control, your thumb and fingers have immediate access to all the controls without letting go. The H2D sits comfortably in the palm of your left hand for support but leaves your fingers free for eventual manual focus adjustments.

Note the changes on the LCD as you press the various buttons and rotate the control wheels. Notice too the changes in the viewfinder LCD as you do the same. You cannot damage the camera by pressing the wrong buttons or controls or using them in the wrong order. The worst that can happen is that you might get 'lost' in the menu or you might activate a certain action that takes time to complete. In this case simply click on the escape button (ON-OFF - PROFILES / ESC) to return to the 'main' screen again.

Attempt a half-press with the shutter release button with the camera set at autofocus too see how the lens focuses and the light metering reacts. Notice that the lens barrel does not revolve in autofocus but you can immediately change the focus manually and immediately revert to autofocus again by using a half-press again.

Note the readily accessible customizable buttons that provide direct access to most functions (investigate how you can exploit this excellent function to the full in a later section).

Feel for the stop down button positioned between the lens and the grip.

Press the AF button and then turn the front control wheel to change from AF single to AF continuous to Manual to try out the differences in how the camera behaves in these different modes, for example.

Press the EXP button on the viewfinder and then turn the rear control wheel to change the metering method to see the changes in sensitivity of the exposure meter.

Quite simply, just explore the camera for a little while to feel at home with the general handling and the idea of control buttons and wheels and LCD information, etc. The sooner you become accustomed to moving the controls instinctively the sooner you will be able to effortlessly use the finesses on offer.

The remainder of this manual will slowly take you through, stage for stage, each feature and setting so that you can master this marvellous piece of photographic equipment and exploit it to the full.

The functions and options described in this manual refer to firmware version 9.1.0 and later. Updates can be implemented through the FlexColor application. The ability to update camera firmware is an advantage you should not forget to make full use of to maximize the capabilities of your H2D!

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2 Function Control & Display

- LCD display on camera
- LED display on viewfinder
- OLED display on sensor unit
- Upgradeable firmware
- Rapidly accessible menu
- Interactive display
- Customizable functions

All functions and settings on the H2D are accessed and altered by the control buttons and wheels on and around the grip aided visually by the LCD user-interface. Digital capture settings can be controlled either by buttons on the sensor unit or through FlexColor on a tethered computer.

The information on the grip LCD is in menu format and has a great deal in common with those found in modern computers, cell phones, etc. It is pixel based and therefore has a greater capacity to produce user-friendly symbols.

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Below is an overview of the primary functions of the control wheels and buttons. Some controls have dual or triple functions according to the state of the menu or setting. A full description can be found further on in this manual.

Shutter release button

Activates camera and releases shutter.

FLASH / (CONTROL LOCK) button

Lock settings to avoid inadvertent change. Also accesses flash settings.

AF button

Accesses focus modes.

DRIVE button

Accesses the various drive modes.

Front control wheel

Accesses and changes various settings.

MENU button

Accesses menu.

Illumination button

Illuminates grip LCD.

ON.OFF (PROFILES/ESC) button

Turns the camera on and off. Accesses Profiles and acts as escape button for other functions.

Rear control wheel

Accesses and changes various settings.

M.UP button

Raises and lowers mirror. Can be reassigned to another function.

Remote release cord port

For attaching a remote release cord (electrical).

STOP DOWN button

Stops down aperture to current setting. Can be reassigned to another function.

AE-L button

Locks light reading made in both automatic and manual exposure modes. Can be reassigned to another function.

USER button

User assignable-function button.

⊙ button

No function at present.

Eyesight correction adjustment wheel

Personal eyesight adjustment facility.

EV correction adjustment button

Produces EV compensation.

EXP button

Accesses exposure mode and metering method.

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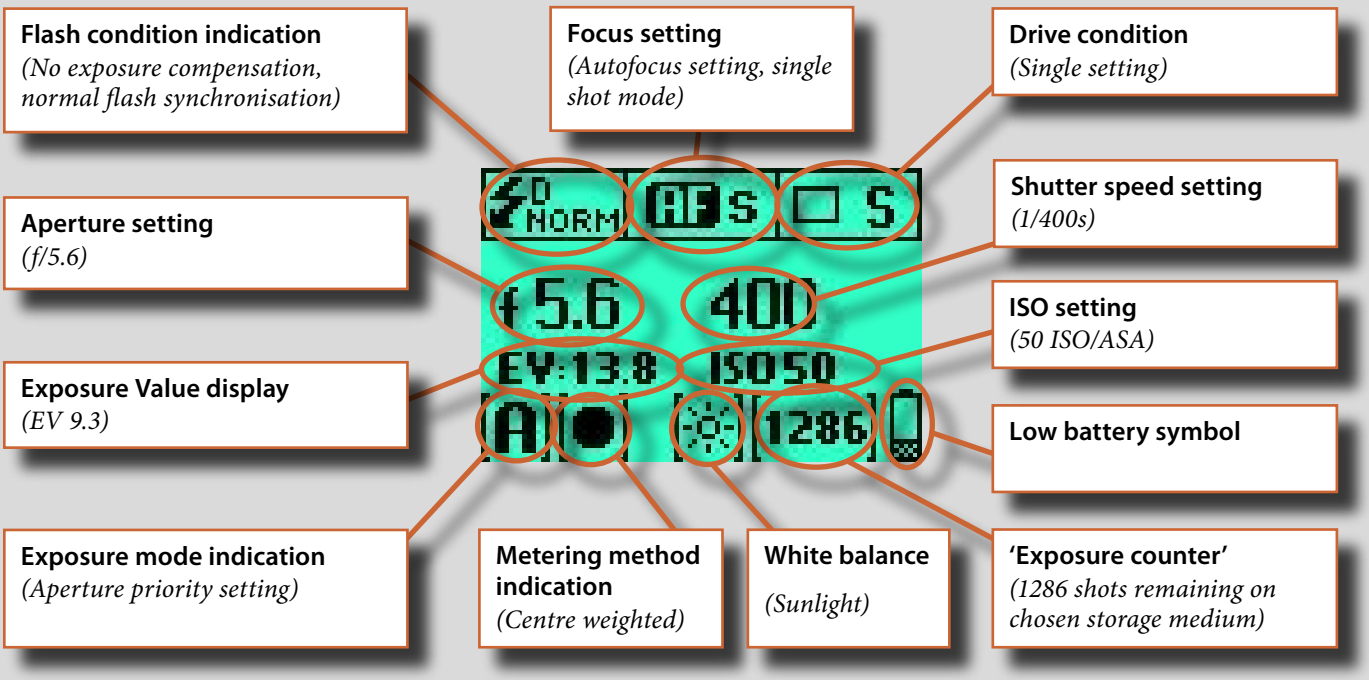
Grip LCD

Typical camera grip display. (The information in brackets describes this particular example).



Typical camera grip display when changing settings.

Command indication

The upper row on the screens describes commands (which change according to the setting). The button immediately above each command effects the change. So in this case, for example, you would press the FLASH button to 'exit' from the screen. See note below.

Settings symbols

Symbolize the options available when settings are changed. The active symbol is depicted by a drop shadow.

Control wheel description and direction

Arrowheads symbolize which control wheel should be used to change the setting they are beside. In this case, the Bracketing option is chosen by the front control wheel and the number of exposures in that option is chosen by the rear control wheel.

◀ … ▶ = *front control wheel*

▲ ▼ = *rear control wheel*

Setting information

The lower row on the screen displays information about the current state of the setting. In short, the upper row displays what you can do, and the lower row displays the current state of settings or what you have done.

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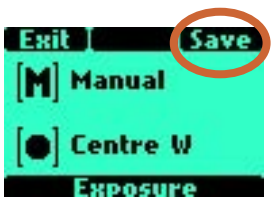
The basic principle behind making changes is that the appropriate button is first pressed to access the menu and then settings altered by way of the control wheels. The appropriate control wheel is designated by arrowheads alongside the setting description.

- *Some buttons have a toggle function, the ON.OFF button has a quick 'click' action as well as a longer (half-second) 'press' action and the shutter release has two positions: 'half-press' and 'full-press'.*
- *Several buttons on the grip are multifunctional, according to the state of the menu. In the example illustrated here, the FLASH button functions as the EXIT button, the AF button functions as the ON button and the DRIVE button functions as the SAVE button.*
- *At very low temperatures the LCDs require a few seconds to display new settings.*

Examples



The following is a list of the various terms describing the various actions that appear in the menu (on the grip LCD):

Enter : *moves screen down one level on the menu.*

Exit : *moves screen back up one level on the menu. Does not save any settings.*

Off : *deactivates the particular function being set.*

On : *activates the particular function being set.*

Sel. : *(Select) - selects the character marked for image info and profile name*

ESC : *(Escape) - terminates an action and returns to the main screen. Does not save any settings.*

Save : *saves a setting and also moves screen back up one level on the menu. Can save many changes made in a setting sequence.*

Remember the following groupings of 'saved' and 'not-saved' actions when making settings changes:

SAVED	NOT SAVED
'Quick save' - *half-press shutter release button*	**Escape** - *press ESC button (PROFILES /ESC button)*
Save - *press save button (DRIVE button)*	**Exit** - *press exit button (FLASH button)*

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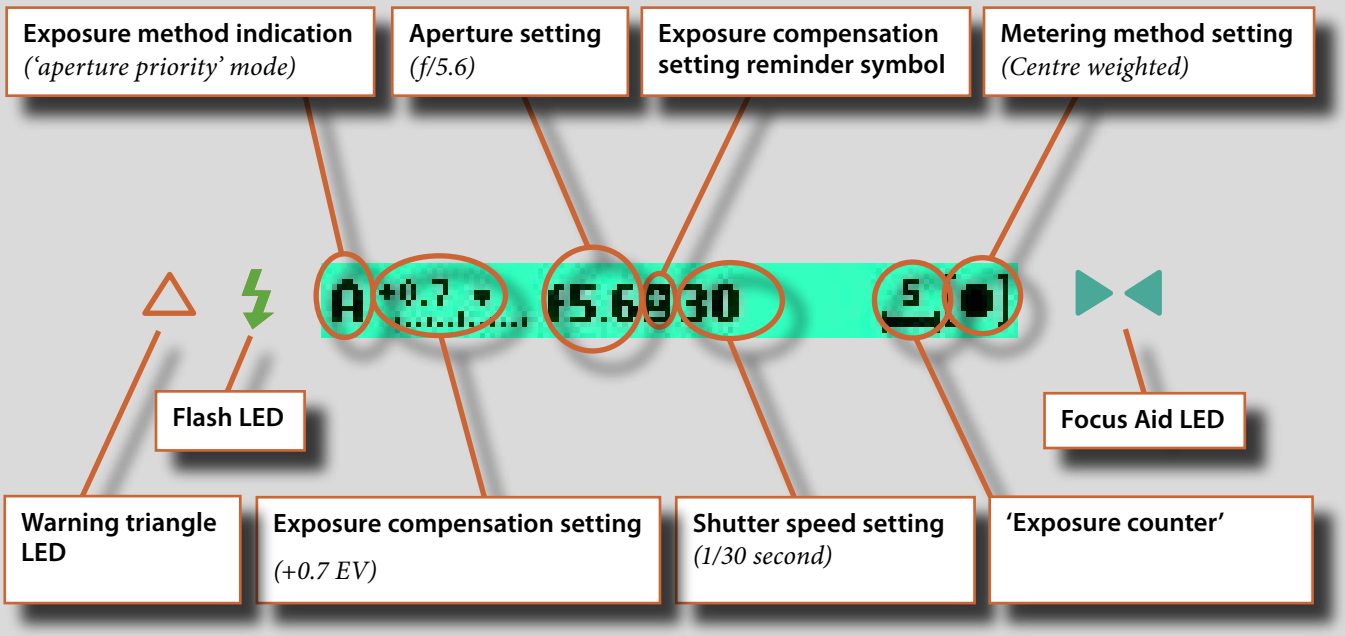
Viewfinder LCD

Typical viewfinder display. Note the LEDs will only be visible when activated (by the camera or a setting).

(The information in brackets describes this particular example).



Some examples of various viewfinder LCD screens visible with standard settings and when specific control buttons are pressed.

Standard settings	*Normal screen* — *Normal screen in AE lock state* — *Normal screen with exposure compensation set*
FLASH	+0.0 Ev Flash Normal — -1.0 Ev Flash Normal — +0.0 Ev Flash Rear *Flash mode*
AF	Manual AF — Single AF — Cont AF *AF mode*
DRIVE	Single Drive — Cont Drive — Multi Drive Num:4 *Drive mode*
MENU	Menu mode *Menu mode*
+/-	EXPOSURE ADJUSTMENT +0.3 Ev *Exposure compensation mode*
EXP	A Exp — S Exp — P Exp — M Exp *Exposure method and metering method*

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Menu charts – general

Throughout this manual you will find charts to explain the steps and procedures required to alter the various settings. These charts are laid out to graphically illustrate in a simple manner how to navigate through the menus. While they include all the information that would be presented on the LCD relevant to that section, they cannot illustrate all the possible combinations of the various symbols seen on a screen at one time as that would be impractical and too confusing. If you are at all familiar with cell phone menus, for example, then the design of the layout and working practice will not be unfamiliar

You should find that, in practice, working your way through a menu on the camera is a good deal simpler and more obvious than the written explanation implies!

In the descriptions, various terms are used regarding menu navigation. Menus have 'trees', for example, which describes their imaginary graphical layout where you could trace a navigational path along its 'branches'. Each new section, or stopping off point on the branches, seen on the LCD is called a 'screen'. Therefore a screen is the graphical display on the LCD of where you are on the menu and represents the current state of settings.

The H2D features the advantage of multiple customization of settings. This means that your personal choice of settings, and thereby appearance of various combinations of symbols on the LCD at any time, will not necessarily be the same as many of the screens illustrated in this manual.

To simplify the descriptions, reference is often made to a 'main' or standard screen. Apart from default settings, there is no actual standard setting in the normal sense and therefore you create your own 'standard', which of course can be changed at any time.

The 'main' screen is therefore the one you have currently created and is the one visible on the LCD when photographing (except where a particular mode is in actual operation, such as self-timer, for example).

Symbols used in the charts

Use front control wheel
(direction depends on user setting)

Use rear control wheel
(direction depends on user setting)

Press button or turn wheel

MENU button on the grip

Choose ENTER
(by pressing DRIVE button on grip)

Choose ON
(by pressing AF button on grip)

Choose Save
(by pressing DRIVE button on grip)

The new setting will be saved and chosen action can be carried out. Setting will be retained until changed.

Functions in loop on menu

A loop means that the available functions on that particular branch of the menu can be successively accessed in either direction of the control wheels without a break in flow. That is, you could turn the wheel clockwise or anticlockwise to arrive at the desired function.

Main direction of path through menu

The main path traces step-by-step the path that has to be taken through the various branches of the menu tree as they appear on the LCD to reach the relevant functions.

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Shutter release button A

This button has *half-press* and *full-press* positions. By pressing half-way (or softly) the camera, auto focus function and exposure meter can be activated. By pressing all the way down (or more firmly) the shutter will be released (or the chosen exposure procedure will begin, as relevant. For example, the self timer is activated with this button)

FLASH / (CONTROL LOCK) button / (EXIT) B

This is a triple function button. If you press the button for one second, the beeper will sound (if set) and a key symbol will appear on the grip LCD signifying that the controls (except the shutter release) have been locked and therefore cannot be altered unintentionally in use. Press the button for one second again to unlock (this function can be altered to lock all controls or control wheels only in 'Custom options').

Quickly clicking the button will access the flash settings information on the LCD from the main screen. See separate section for full details.

This button also acts as the **EXIT** button for many other settings.

AF button / (ON) / (SEL.) C

This is a triple function button. Press this button to go directly to the autofocus/manual focus choice screen from the main screen. See separate section for full details. It also acts as the **ON** and **SEL.** (= select) buttons for many other settings.

DRIVE button / (SAVE) / (ENTER) D

This is a triple function button. It will access the drive settings screen on the LCD from the working screen. See separate section for full details.

It also acts as the **SAVE** and **ENTER** buttons for many other settings.

Front control wheel E

The front and rear control wheels are turned to make changes in exposure settings in the main screen as well as to access the various loop sections of the menu for settings. The effect of the wheels' direction is programmable.

MENU button F

Accesses the first level of the menu for settings changes.

Illumination button G

Press to illuminate the LCD. Remains active until camera enters standby mode.

ON.OFF (PROFILES/ESC) button H

Press the button for a half second to activate the camera. The H2D start-up logo will appear and then the main screen. After a few seconds (customizable) the camera will enter Standby mode. A press of the button will turn the camera off completely whereas a quick 'click' on the button will access the Profiles section of the menu from the main screen.

Note the difference in results between a long press and a quick click of the this button.

Rear control wheel I

The front and rear control wheels are turned to make changes in exposure settings on the main screen as well as to access the various loop sections of the menu for settings. Acts as quick access exposure compensation control. The effect of the wheels' direction is programmable.

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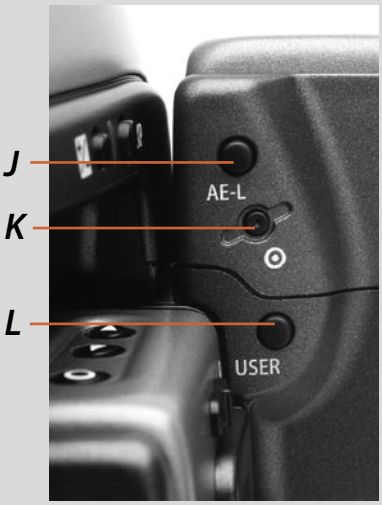


On the rear of the grip, as well as the rear control wheel, there are a further three control buttons:

AE-L button — *J*

This button can lock a light reading made in both automatic and manual exposure modes. It can also be used in Zone mode to take a new reading.

Can be reassigned in* Custom Settings *to another function.

See section on the AE-L button (chapter 8, Light Metering and Exposure Control) for full details.

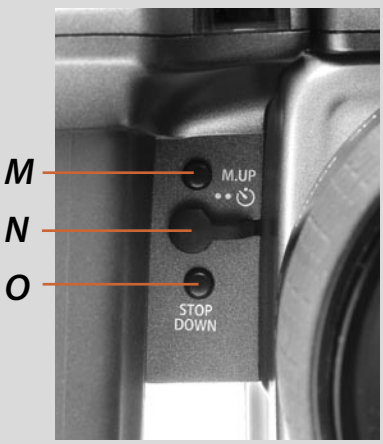
⊙ button — *K*

No function at present.

USER button — *L*

This button is purely user programmable to rapidly access a chosen function or screen. For example, you might use bracketing a great deal and so by one press of this button you could access the bracketing function without having to navigate through the menu. The **AE-L**, **Mirror -UP** and **Stop Down** buttons are also user-programmable but are by default assigned the functions according to their names

The reassignable capability of these buttons is particularly useful and can save you a great deal of time and effort depending on how you work. You are advised to investigate their potential fully. See under 'Custom settings' for full details.



On the front of the grip there are two more control buttons plus the remote cord release port:

M.UP button — *M*

Press this button to raise the mirror and press again to lower it (toggle function). A quick double press of the button (two within a half second) will immediately access the 'Self timer' function.

Can be reassigned in* Custom Settings *to another function.

Remote release cord port — *N*

For attaching a remote release cord (electrical). The Hasselblad accessory jack plug socket is protected by a captive rubber plug.

STOP DOWN button — *O*

Press this button to make a visual check of the depth-of-field on the viewfinder screen at the chosen aperture. The aperture will close according to the setting and remain closed as long as the pressure is maintained. You can alter the aperture at the same time to see the changes taking place.

Can be reassigned in* Custom Settings *to another function.

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There are also two control buttons on the viewfinder, as well as the eyesight correction adjustment wheel:

Eyesight correction adjustment wheel P

The personal eyesight adjustment facility has a diopter range of -4 – +2.5, to suit most users.

EV correction adjustment button Q

Press this button to access the EV compensation screen. Settings are made with either the front or rear control wheels. An EV correction symbol appears on the grip and viewfinder LCD as confirmation.

EXP button R

The **EXP** (Exposure) button accesses the exposure mode and metering method options screen. Settings are made with the front and rear control wheels and the appropriate symbols appear on the grip and viewfinder LCD accordingly.

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3 Camera Body

- Aluminium cast in one piece
- Stainless steel shell
- Integral Quick coupling plate
- Digitally controlled
- Upgradeable software
- Modular design
- Integral ergonomic grip
- Pixel based LCD user interface

The H2D camera body is a robust construction of cast aluminium with a stainless steel shell for extreme durability. The workings of the camera are controlled by silicon technology that provides tremendous opportunities for sophisticated operation. To take just two examples, the mirror return is slowed down at the last moment by controlling the motor to decrease vibrations and the current usage status of the camera body, lenses etc is recorded and freely accessible for service intervals, etc.

The integral ergonomic grip houses the main control interface and also contains the battery holder. An auxiliary shutter in the rear opening of the camera body protects the sensor unit from exposure during the various camera procedures. Please take extra care when handling the camera body without a protective cover or the sensor unit in place to protect the auxiliary shutter. Likewise, the front opening of the camera body reveals the mirror when unprotected by a cover or lens. Do not touch or attempt to clean the mirror—slight marks or dust particles will not affect results. More noticeable problems, however, should be taken care of by a Hasselblad Authorized Service Center. The camera body also contains the viewfinder screen, which can be easily removed or exchanged without the use of special tools or adjustment procedures.

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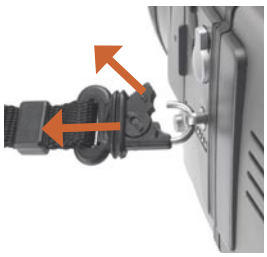

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Carrying strap 1, 2

The carrying strap is attached by firstly withdrawing the safety collar. The hook is then freed and attached to the strap lug (fig. 1). Slide back the safety collar (fig. 2) to ensure the hook remains in the locked position between the small protruding lugs. The collar is purposely a tight fit and might need some effort to slide.

Rechargeable battery grip 3, 4

The H2D requires battery power for all actions. Being a completely digital camera there is naturally no mechanical reserve facility. It is therefore advisable to keep the reserve grip complete with fresh lithium batteries handy if you do not use a spare rechargeable grip. As is the case with most batteries, problems might be encountered when used in very low temperatures. In this situation it is advisable to keep the reserve in an inside pocket, for example, to maintain them near body temperature.

The Battery grip rechargeable 7.2V (3043348) is the standard power source for the H2D camera. Remove it from the camera by depressing the battery holder button and simultaneously swinging the battery holder retaining lever down until it stops. Pull battery grip downwards.

If you intend to store the battery grip separately from the camera you should ensure that the safety cover is in place. It snaps into place and is removed by pulling outwards and upwards on the locking clip as in the illustration.

The battery charger 5, 6

The battery charger unit is supplied with five plug attachments to suit various types of domestic electrical sockets available worldwide. Other types of socket will require a domestic socket converter. Attach the chosen plug (fig 6) by sliding it into position, ensuring that the two electrical contact prongs on the charger correctly enter the two contact sockets on the plug attachment. Removal is by the reverse procedure.

Please note the Battery charger BC-H Li-ion 7.2 VDC (3053568) is designed for use with Battery grip rechargeable 7.2V units only.

Charging the battery 7, 6

With the battery grip removed from the camera, insert the jack plug from the battery charger into the socket (fig. 6) on the battery grip. Insert the battery charger into a standard (100–240V~ /50–60 Hz) domestic socket. The red LED indicator on the battery charger signifies the following:

On (not flashing)	= battery is charging
Slow flashing (0.8 Hz)	= charging is complete and condition is being maintained.
Or occasionally	
Rapid flashing (3 Hz)	= deeply discharged battery is charging (with reduced current)

Please note that rapid flashing of the LED indicator is not to be expected. The battery will not normally be so deeply discharged because the camera will shut down automatically before complete battery discharge takes place. The indicator might also flash rapidly for a few moments in some instances when the charger is connected to the electrical supply. The normal indication is therefore either 'not flashing' or 'slow flashing'.

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Attaching the battery to the camera 8

Holding the battery holder flat against the grip and aligning the two upper lugs with the slot in the grip, slide it back into position as far as it will go. Swing back the battery holder retaining lever until it clicks back into place.

Please note if you want to use the rechargeable battery with an H1/H1D model, the firmware in the camera must be version 8.2.2 or later for the battery grip to function properly.

Rechargeable battery grip – general

- The battery should be charged before first time use.
- Maximum battery capacity is reached only after the battery has been charged and discharged several times.
- The battery is an environmentally approved Li-ion type and has no 'memory effect' of practical importance. This means the battery can be charged before it is fully discharged without loss of capacity or performance.
- The battery should be charged at an ambient temperature of 10 –30° C.
- When removing a battery from the charger and immediately replacing it with another, allow a few seconds to elapse so that the charger can automatically reset for the next charging procedure.
- It is perfectly normal for the battery to become warm when being charged.
- A slight temporary loss of battery performance might be noticed at very high or low temperatures. Take the approriate measures if this is the case.
- Long-term storage of batteries with very low charge is not recommended.
- The battery has a limited life and its performance is gradually reduced over time.
- It is advisable to follow the recommendations and precautions in this manual for product performance and safety reasons.

Rechargeable battery grip – precautions

The following precautions should be adhered to:

Battery grip rechargeable 7.2 V:

- Connect the battery grip to the camera correctly.
- Keep the protective cover in place when not in use. (Short-circuiting across keys in a pocket, for example, could cause a fire risk).
- Do not use the battery grip for anything other than an H1/H1D/H2/H2D camera.
- Do not immerse the battery grip in liquids.
- Do not incinerate the battery grip. Please recycle or discard in an environmentally approved manner.
- Do not use any other charger than the Hasselblad battery charger BC-H Li-ion 7.2 VDC (3053568).

Battery charger BC-H Li-ion 7.2 VDC:

- Read the instructions before using the charger.
- Use indoors only (protect against moisture).
- Do not use charger for anything else than charging of Battery grip rechargeable 7.2 V (3043348).
- Do not short-circuit the jack plug.
- Do not alter the charger in any way other than changing the plug attachment.

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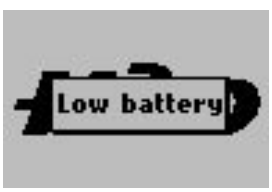

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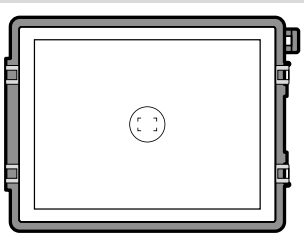

Viewfinder screen showing composition frame marking.

Reserve lithium battery grip *9, 10, 11*

The reserve lithium battery grip is attached and removed in the same manner as the rechargeable grip.

Press the red battery cassette retaining button inwards on the holder to release the battery cassette (fig 9). Load three CR-123 lithium (or equivalent) into the cassette, ensuring the polarity of each battery is correctly oriented (see the '+' markings on the batteries and the cassette) (fig 10, 11). Re-insert the cassette into the battery holder, ensuring that it is seated properly in place and that the red button returns fully into the locked position. Holding the battery holder flat against the grip and aligning the two upper lugs with the slot in the grip, slide it back into position as far as it will go. Swing back the battery holder retaining lever as far as it will go into the locked position.

Battery life *12, 13*

Battery life is dependent on a number of variable factors and therefore cannot be exactly predicted.If the camera is left in the active state instead of standby for long periods, for example, then battery life will be reduced. A low-battery state is indicated as a symbol on the grip LCD (fig. 12).

When the batteries are almost completely exhausted, a warning message 'Low battery' will appear on the grip LCD (fig. 13). The camera will not function at all when this message appears and battery change is essential.

Viewfinder screen *14, 15, 16*

The H2D is fitted with a Spherical Acute-Matte D viewfinder screen for extreme brightness, clarity and even illumination. An optional accessory screen with a grid pattern is also available.

To change a viewfinder screen, remove the viewfinder to access the viewfinder screen. To remove the screen, place the tip of a ballpoint pen or similar in the viewfinder screen removal lug and pull upwards. To replace the screen, position the right side of the screen in place so that it sits correctly in the recess. Place the tip of a ballpoint pen or similar in the viewfinder screen replacement indentation and press downwards until the screen snaps into position. Try to avoid touching either surface of the screen with bare fingers.

Do not attempt to clean the screen by immersing it in water, or use any kind of cleaning fluid. If the screen becomes damp, do not use hot air to dry it. Use a soft cloth on the upper surface only. Seek advice from an Authorized Hasselblad Service Center if the screen becomes particularly soiled. Remember that particles or greasy marks on the screen might impair the viewfinder image but have no effect whatsoever on the recorded image.

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Accessory connection 16, 17

On the left hand side of the camera body are two accessory retaining screw threads (M5), as well as a databus connector, protected beneath a cover. The screw threads are a future-safe design feature for new products while the connector is for service purposes only.

The cover can be removed by inserting a pointed object, such as a pen, in the small hole and then sliding it to the left, as in the illustration. The retaining clip can then also be removed to access the connector.

PC-connector

A PC connector for non TTL-flash synchronisation is located on the left side of the body. It is protected by a captive rubber plug.

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4 Viewfinder

- Multi-mode light metering
- Full exposure information
- 100% image
- 90° viewing angle for eye-line composition
- Full image for spectacle wearers
- Integral dioptre adjustment
- Integral flash unit

The 90° viewfinder provides a laterally corrected 100% image at eye-line level. It features a wide-range diopter adjustment to suit most users. The viewing distance is designed to provide full frame view even for eyeglass wearers. The bright Spherical Acute-Matte D focusing screens (located in the camera body) are interchangeable to suit preference, each of them naturally indicating the spot light metering area for accuracy in exposure estimation. The information display located beneath the viewing frame is continually updated and visible and is back lit for optimum visibility. This LCD also duplicates much information visible on the grip LCD for immediate checking. In addition to the LCD, there are four LEDs providing general warnings, flash and focus information.

The viewfinder also features a pop-up fill-flash unit for added convenience.

The viewfinder requires no batteries as it is supplied with power from the camera body and can be easily and quickly removed. Please see section on 'Flash' for full details.

See the 'Camera Body ' section for details about the viewfinder screen.

The exposure compensation button and exposure mode button are described in the 'Function Control' section.

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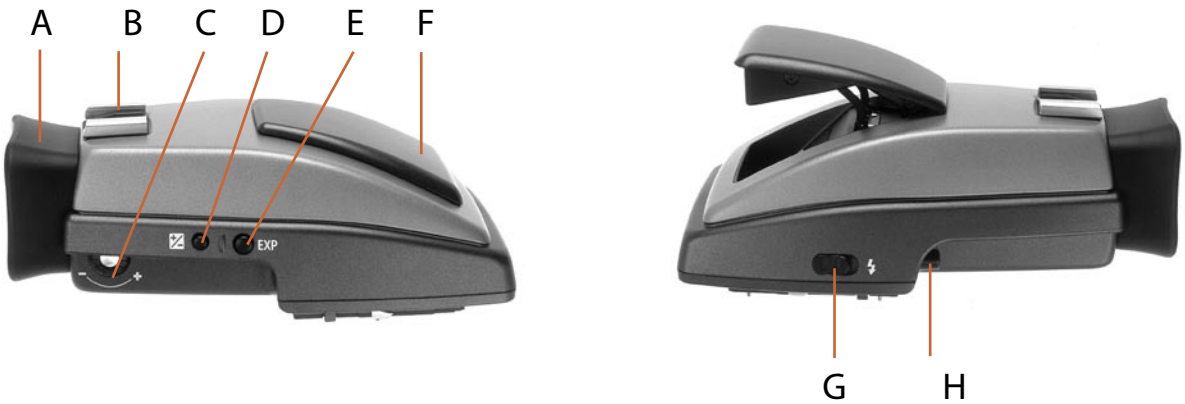

Parts & Components

A. Rubber eye cup
B. Hot shoe
C. Eyesight adjustment wheel
D. Exposure compensation button
E. Exposure method / mode button
F. Integral flash unit
G. Flash unit button
H. Viewfinder release button

Attaching and removing the viewfinder

While holding the viewfinder at a slight angle and resting it on the top of the camera, slide the viewfinder forward until the front locating pin is in position in the recess in the front edge of the viewfinder screen aperture on camera body. Press the rear part of the viewfinder firmly downwards until it clicks into place.

Ensure that both sides of the viewfinder are seated correctly and that it has been firmly attached. Failure to do so could cause an intermittent malfunction if the databus interface connections between the viewfinder and camera body are not positively secured.

To remove, grasp the viewfinder in the right hand and while depressing the viewfinder release button, lift the rear of the viewfinder up and away from the camera body.

Eyepiece adjustment

No corrective lenses are needed to adjust the eyepiece to suit most requirements. The diopter range is from -4 D to +2.5 D. Eyeglass wearers can rapidly and accurately change the settings according to whether they wish to wear eyeglasses for viewing or not.

Personal eyepiece adjustments can be carried out by pointing the camera at the sky or similar smoothly toned area. While holding the camera in your left hand, you can with your right thumb turn the adjustment wheel until the markings on the viewfinder screen reach the optimum sharpness for your eyesight.

If you normally wear eyeglasses for distance viewing and intend to wear them for camera use then do not remove them for the above procedure. If, on the other hand, you prefer to remove your eyeglasses for camera work, then repeat the above procedure without wearing your eyeglasses.

Rubber eye cup

Two rubber eye cups are available for the H2D. The one supplied is suitable for users who do not intend to use eyeglasses when photographing. The second shorter eye cup is for those who either prefer to position their eye further from the viewfinder and those who wish to wear eyeglasses.

The eye cups can be rapidly changed by a Hasselblad Authorized Service Center.

Integral flash unit

See section on ‘Flash’ for full details.

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5 Lenses

- Rapid and accurate automatic focusing capability
- Central electronic shutter
- Instant manual focus override with natural friction
- Instant automatic-focus return capability
- Non-rotation of filter or accessory when focusing
- Non-rotation of lens barrel in automatic focusing mode
- Shutter speeds 32 sec to 1/800 sec with flash sync
- Reversed lens shade serves as protection
- Automatic detection of extension rings and converters

All HC lenses have been specially formulated for the H system to produce the extremely high performance expected from Hasselblad to meet the demands from conventional and digital photography alike. In addition to extreme sharpness, the design also incorporates a soft, pleasant looking boké (the visual quality of the out-of-focus areas of the image). All lenses feature an electronically controlled central shutter designed to extremely fine tolerances for supreme accuracy that also provides flash synchronization with all speeds from 32s to 1/800 s. All lenses have a very rapid automatic focus capability with instant manual override. To ensure reliable and fast autofocus in low contrast and low light conditions, a focusing-assist light (on the grip) is automatically activated. Aperture and shutter control is set via the control wheels on the camera grip.

As a general rule, lens shades should always be fitted to achieve optimum performance. Protective filters (UV / Sky) should also be considered at least when working outdoors in harsh conditions.

(See Accessories section for information about the CF Adapter that allows the use of C type lenses from the Hasselblad V-system).

H2D

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Parts and components 1

A. Lens shade index
B. Manual focus ring
C. Focusing distance scales
D. Depth-of-field scales
E. Lens index

Attaching a lens 2, 3

Remove the front protective cover on the camera body by depressing the lens release button and keeping it depressed while turning the cover counter-clockwise. Remove the rear lens cap by unscrewing it in a counter-clockwise direction. Align the index on the lens with the index on the camera body and rotate the lens clockwise (bayonet fitting) until it clicks into place.

Removing a lens

Depress the lens release button and keep it depressed while rotating the lens counter-clockwise until it stops and lift it out. Replace protective caps on the lens immediately and on the camera body if necessary.

If you try to rotate the lens before you press the lens release button, it might lock. In this case, rotate the lens clockwise a little first and then re-attempt removal with the correct procedure: button first, then lens.

Front lens cap 4

Front lens caps are released for removal and attachment by inserting a thumb and index finger into the recesses and pinching in the direction of the arrows.

Filters

Filters have a screw thread fitting (67 / 77 / 95 mm, according to lens) and are screwed clockwise into place. As there is no rotation of the front section of the lens when focus is changed, filters do not rotate either. This is particularly useful when using polarizing or graduated filters where the orientation is normally critical.

Lens shades 5, 6

All lenses are supplied with lens shades that additionally provide extra protection for transport and storage when mounted in reverse. Lens shades have a bayonet fitting and are turned clockwise into place after ensuring the index on the lens shade aligns with the index on the front of the lens. When mounted in reverse, they are attached by matching the indexes and turning counter-clockwise.

Shutter and aperture control

Both the shutter and aperture are electronically controlled and are adjusted by the control wheels on the grip. There are no separate manual setting rings on the lenses or camera body.

The chosen settings are displayed both on the grip LCD and in the viewfinder LCD. See the ‘Exposure Control’ chapter for a complete explanation.

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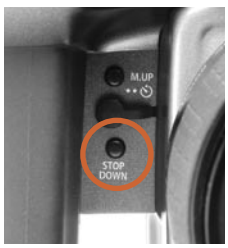

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Lens focus setting too far beyond the distance of the subject framed by the central section in the viewfinder

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Focus setting too close for the distance of the subject framed by the central section in the viewfinder

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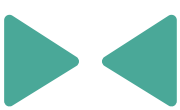

Focus setting correct

Depth-of-field calculation 7

There are two distance scales (in feet and metres) visible through the focus distance window on the upper part of the lens barrel. There is also a central lens index mark and a depth-of-field scale. The focusing distance is read off the chosen scale from the central lens index.

Depth-of-field can be calculated as follows:

1. *Focus the lens as required.*
2. *Make an exposure reading (auto or manual) and note the aperture setting.*
3. *Find the markings on either side of the central index that correspond to the chosen aperture.*
4. *From these two markings, read off on the required lens distance scale the two corresponding distances.*
5. *The depth-of-field (at that particular aperture and focus setting) will be the area included between these two distances.*

In the example given here, the focusing distance is set at nearly 3 metres. At an aperture of f/22, the depth-of-field would therefore extend from just over 2 m to approx... 4.5 m.

Stop down /depth-of-field 8

A visual depth-of-field preview can be made by depressing the **STOP DOWN** button while viewing the image on the viewfinder screen.

Infrared focus settings 9

As infrared rays form an image at a different plane to that formed by visible light, the normal focus settings do not apply. Proceed as follows in manual focus mode:

1. *Focus the lens in the conventional manner until satisfied.*
2. *Note the distance setting against the central lens index.*
3. *Re-align this distance setting against the infrared mark (coloured red) instead of the central lens index.*

Alternatively if you have already calculated the required distance, you can make a manual distance setting by using the distance scales together with the infrared mark instead of the central lens index.

Focus aid

As well as the conventional view on the focusing screen to ensure a sharp image, the H2D also features LED focus aid appearing as two arrowheads to the right of the viewfinder display (except for lenses with a maximum aperture of f/6.7 or smaller). The arrowheads provide confirmation of a precision focus setting and are a useful aid when making a setting with eyesight alone.

Manual focus setting

When the left arrowhead alone appears it means the focus setting is too far beyond the chosen distance (the area framed within the central zone in the viewfinder) and when the right arrowhead alone appears it means the focus setting is too close. Focus is correct when both arrowheads appear together. If the focus cannot be established, then both arrowheads flash.

Automatic focus setting

Focus is correct when both arrowheads are visible together. Focus

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is incorrect if only one arrowhead is visible. If the focus cannot be established, then both arrowheads flash.

CF Adapter

The CF adapter is an optional accessory that allows virtually all C type lenses from the V-system to be used on H-system camera bodies. This automatically expands the potential lens range for H cameras by more than a dozen different focal lengths. The automatic focusing system in the H camera can be used as a guide for manual focus setting. Light is measured at full aperture with all lenses which produces aperture and shutter speed information display in the camera for manual setting. With CFE lenses, however, a preset aperture is automatically transferred to the camera. Shutter cocking is manual with all lenses and is swiftly carried out by an easily accessible lever.

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7

Sensor unit & Digital capture

- 22 million pixels for high end results
- 3 operating and storage modes
- Direct shooting to Adobe DNG
- FlexColor worklow efficiency
- Instant approval architecture

The H system cameras were designed with digital photography in mind right from the outset so the H2D is a natural development within the world famous H system.

Seamless integration and consequently increased efficiency and improved workflow are the results of such a design that features shared information visible on the LCDs/ OLED as well as a shared battery, for example.

FlexColor, the image processing software that is included, can take advantage of the information that is stored with each capture both for future reference and for enhanced processing to fine-tune optical characteristics, for example.

FlexColor also provides for tethered use allowing digital capture control directly from the computer.

HC lenses were also formulated to meet the very high demands made by digital sensors, which they do with ease.

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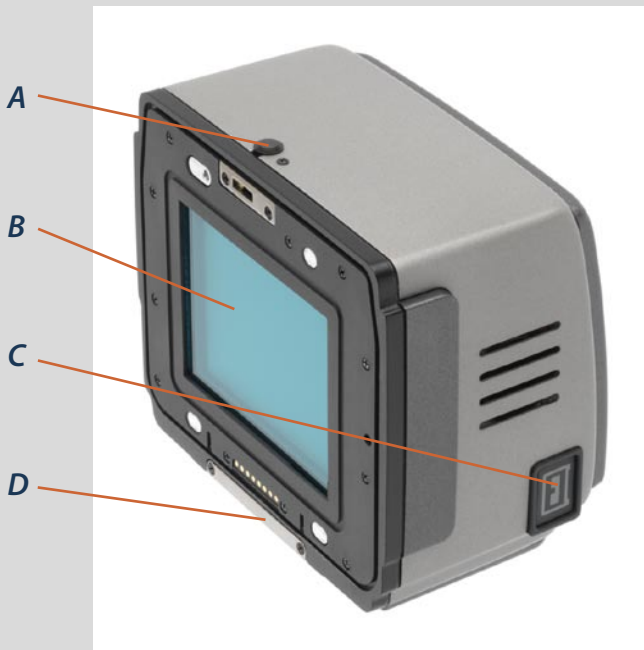
The sensor unit houses the CCD; the digital capturing component of the H2D camera. This light-sensitive element is called an area array CCD (charge coupled device), which acts as computer-readable electronic 'film'. The surface of the CCD has 22 million light-sensitive areas, each of which creates a pixel in your final digital image. In a colour digital image each pixel has three colour components: red, green and blue (abbreviated RGB). The pixels in the sensor unit's CCD are filtered to create three images – one of each colour – which are later combined by the software to create a single full colour image.

The H2D can store captured images in three ways:

- *Untethered – directly onto a CF card*
- *Tethered – via a FireWire cable onto a Hasselblad Image Bank CF*
- *Tethered – via a FireWire cable onto a computer hard disk*

The sensor unit has its own controls and graphic interface in the form of a bright and clear OLED. The built-in digital light meter, with full histogram display and audio exposure warnings, helps to ensure a perfect exposure.

When using the camera tethered in a studio you can control all the digital aspects of camera operation from a computer using the FlexColor image capturing software. See the "FlexColor Software Reference" manual for details.



Sensor Unit – Physical Features

Safety catch — A

Used when removing the sensor unit.

CCD and IR filter — B

This is the light-sensitive element, which is positioned behind a permanently mounted IR filter. Usually, this assembly will either be inside the camera or protected by plastic cover. Always be very careful not to touch or scratch the surface of the filter when it is exposed and to replace the plastic cover whenever the sensor unit is not mounted to a camera.

WARNING: never attempt to remove the glass filter—you will probably ruin the CCD if you do so.

See special section for cleaning.

FireWire connector — C

Insert a FireWire 800 cable here to connect the sensor unit to a computer or Image Bank CF.

Mounting plate — D

This plate, which has a slot just behind it, fits onto the magazine retaining hook on the back.

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The Control Panel

The control panel with its bright OLED screen is the main graphical interface for image checking and sensor unit setting changes when not connected to a computer. However, the grip LCD is still the interface for focus and exposure settings.

The buttons are used for browsing images and navigating the menu system. Two of the buttons, located at the bottom-right and -left of the screen, are given an on-screen label that changes according to the current context (e.g., the bottom-right button sets the approval rating when browsing images, but confirms settings when using the menus).

OLED screen — A

Displays preview images and the menu system even in bright light and from acute angles.

Microphone — B

Function currently not used.

MENU / (EXIT) button — C

Opens and closes the menu system. Also used for various other tasks (Exit button, for example) as you issue commands within the menu system indicated by a label beside the button on the preview screen.

View-mode button — D

Steps through the various view modes for the preview image: standard, histogram overlay, image details, screen off and full-screen.

Busy light — E

Lights red to indicate that the sensor unit is performing an operation (such as saving a new capture) and is not available for new commands.

Zoom-in button (+ button) — F

Zoom-in button (to make the view larger) for the preview image. Also acts as a selection button when viewing available image batches, media (e.g., compact-flash, ImageBank, and value setting on the menu.

Zoom-out button (– button) — G

Zoom-out button (to make the view smaller) for the preview image. You can continue to zoom out to view several small images at once and finally to view and select batches and media. Also acts as a selection button for value setting on the menu.

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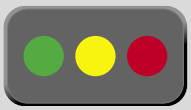
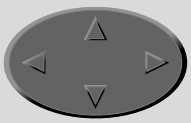


Approve / (OK) button H

This button steps through the three approval levels, thereby assigning an approval status to the image currently displayed (or selected) in the preview screen. (part of the Instant Approval Architecture system). Also acts as a confirmation button (OK button) for some types of menu operations, such as deleting images; indicated by a label beside the button on the preview screen.



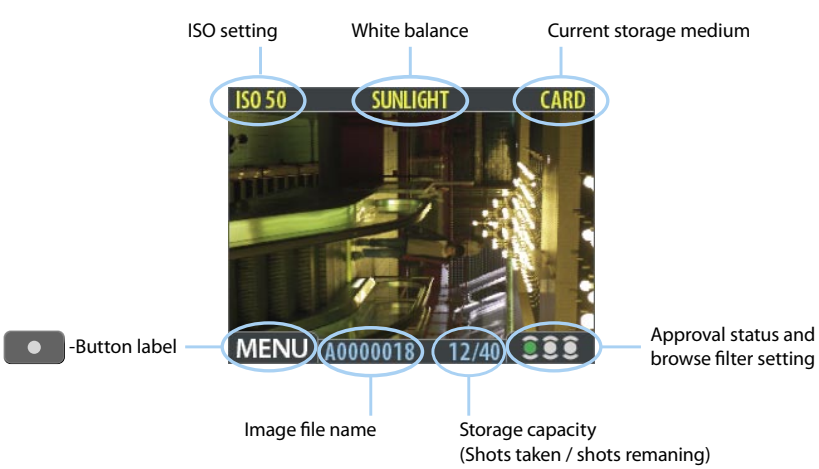
Navigation button I

A four-way rocker button enabling you to step through preview images and navigate the menu system. To use it, press the side of the button that corresponds to what you wish to do (e.g., move up, left, right or down).

Flash card cover J

Covers and protects the flash card slot.

The Standard Preview Display



The standard preview display is the one shown when you first turn on the camera and is probably the view you will use most often. It features a preview of your most recent shot and basic information about the sensor unit settings and the image itself. Several other display modes are also available, including histogram, capture details, full-screen and battery saver. Please see Preview Modes for details.

The display furthermore enables you to navigate the menu system and make camera settings; see Working with the Menus for details

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System Requirements

Whichever mode you choose, final image-storage and correction requires a certain minimum standard regarding computer capabilities. Large images will require a high-performance computer with plenty of memory, advanced graphics capabilities and a recent operating system. In most cases, you will want your computer to include a FireWire connector, which will enable you to load images directly from the camera or ImageBank-CF. To load images stored on the removable compact-flash card, you could instead use a compact-flash card reader, but we still recommend FireWire for maximum flexibility.

The H2D saves images as 'digital negative' (DNG) files, which is a standard format developed by Adobe for storing raw digital-camera captures. Many different programs, including Adobe Photoshop CS and Hasselblad FlexColor, can read DNG files. From FlexColor, you can optimize and export DNG files to either of the most-common desk-top-processing (DTP) formats: TIFF or JPEG. The H2D includes the Hasselblad FlexColor image-capture and editing application and native versions of FlexColor are provided for both Macintosh and Windows platforms. Please see your FlexColor manual for complete system requirements.

Warnings and Restrictions

- **Keep your H2D and all other computer equipment away from moisture wherever possible. If your camera becomes wet, disconnect from power and allow it to dry before attempting to operate again.**
- **Always take great care when you remove the sensor back for cleaning—the exposed CCD sensor is vulnerable to damage.**
- **Keep all cables connected to or from your camera and computer out of the way where they will not be tripped over.**
- **Never cover the ventilation openings on the sensor unit.**

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Shooting

Selecting the current medium

The current medium selection is the location to which new shots are saved and from which you can browse using the navigation button. In many cases, the destination medium is selected automatically, for example:

- ***When you are connected to a computer, then images are always saved directly to the computer hard disk.***
- ***When only one medium is connected (e.g., a compact-flash card), then this medium is automatically selected.***

However, if you are working away from your computer and have several media attached (e.g., both a card and the Image Bank-CF), then you may need to select a medium explicitly if you want to browse its contents and store images new to it.

There are two ways of selecting the current target medium:

- ***Use the MAIN MENU > MEDIA entry of the menu system. See "Selecting the Current Storage Medium" for details.***
- ***Use the zoom-out button to zoom all the way up to the top level, which shows all connected media, and then zoom in on the appropriate medium and batch. See "Navigating Media and Batches" for more information about selecting media and batches in this way.***

Shooting modes

The H2D can store captured images in three ways:

1. Untethered / Compact flash card mode

In this mode the H2D acts totally independently of all exterior connections. All focus and exposure settings are made using the standard camera-body controls for maximum speed and ease of use. Images are stored on an internal, removable compact-flash card and power for the sensor unit is taken from the same battery that powers the rest of the camera.

- ***The main advantage with this mode is the total freedom of cables and extra equipment.***
- ***The main disadvantages with this mode in the field are the battery power capacity and the size of the card's holding capacity.***

2. Tethered / ImageBank-CF or FireWire disk mode

This mode enables you to attach the camera to a portable hard disk or Hasselblad ImageBank-CF via a flexible, light-weight FireWire cable. The ImageBank-CF features massive storage capacity and high-speed data transfer. It is small, lightweight, battery powered and easily clips to your belt, so the solution is just as portable as the untethered option. General-use hard disks can also be used, but usually require an external power source. The sensor unit can also back up its internal images to any external FireWire disk without requiring a computer.

- ***The main advantage with this mode is the great number of images that can be stored without a pause.***
- ***The main disadvantage with this mode is the extra equipment and cablage needed that might restrict mobility in some cases.***

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3. Tethered / Studio mode

This mode enables you to connect your camera directly to a computer and to operate the system using Hasselblad FlexColor software and store images on a computer hard-disk.

- ***The main advantages with this mode are the almost limitless storage capacity and being able to work on the images (with Hasselblad FlexColor) on a large screen.***
- ***The main disadvantage with this mode is the lack of mobility to any great extent.***

Using compact flash memory cards

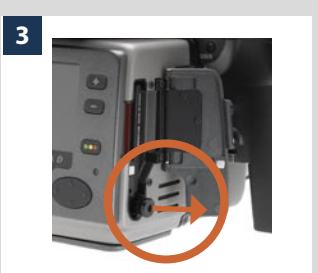
When shooting to a compact-flash card, the H2D is completely self-contained. No additional wires or connectors need to be attached.

The H2D is shipped with a 1GB compact-flash card, which is able to hold over 20 shots. Lossless compression is applied to the images, so the actual size of each capture can vary, thereby affecting the total number of shots you can fit on the card. You can purchase additional, possibly larger-capacity, cards and change them as each card becomes full.

Note that the camera can copy the contents of its flash card to any attached FireWire disk or Image Bank – even when no computer is attached. This enables you to backup your shots and then clear space on the card to keep on shooting. See section on "Transferring Images".

Inserting a card

1. *Open the CF card slot cover on the sensor unit.*
2. *Behind the cover, you can see a slot for the card (A), possibly with a card already inside, and a release button (B) below the slot. If a card is already installed, then remove it as described in "Removing a Card", below.*
3. *Hold the compact-flash card so that the connector holes face into the slot in the sensor unit, with the brand label facing in the same direction as the sensor unit preview screen. Gently press the card into the slot. If you encounter resistance, it might be because you are holding the card backwards or upside down. Experiment until you find the orientation that allows the card to slide in easily.*
4. *When the card is able to drop very easily nearly all the way into the sensor unit, then you are doing it right. Once you have achieved this, press the card firmly into place until it sinks another couple of millimeters into the sensor unit and is held fast.*
5. *Snap the slot cover shut again.*



Removing a card

1. *Open the CF card slot cover on the sensor unit.*
2. *Behind the cover, you can see the bottom edge of the card in its slot and a release button immediately below the card.*
3. *Press the release button a little way in to release it into the active position.*
4. *Press the now extended release button all the way into the sensor unit. Some force is required, so it is a good idea to use your thumb to push while you grasp the other side of the*

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sensor unit with your fingers. As you do this, the card will be pushed out a few millimeters.

5. *Grasp the card between your thumb and forefinger and pull it away from the sensor unit. (Insert a new card as described in "Inserting a Card", if required).*
6. *Snap the slot cover shut again.*

Working with an ImageBank CF

The Ixpress Image Bank CF is an optional add-on for the H2D. It is essentially an external FireWire hard disk optimized for digital photography, providing extensive storage space and high-speed data transfer. It is small, light and battery powered. You can easily clip it to your belt, so the solution is nearly as portable as the stand-alone camera.

To use an Image Bank-CF, simply assemble it as described in the manual and connect with a standard FireWire cable. See the Image Bank-CF manual for complete details.

Please note that only the ImageBank-CF model is compatible with the H2D. Earlier models of the ImageBank are not compatible.

Connections for using the sensor unit with an Image Bank or external FireWire hard disk.

To remove the Image Bank-CF, simply disconnect the FireWire cable.

Working with a standard FireWire hard disk

Although Hasselblad recommends the Image Bank CF because it has a high read and write speed, you can actually connect any external FireWire disk to the sensor unit. Various models are available, but they are not usually battery powered and the camera cannot supply power over the FireWire cable (as a computer can for some hard disk models). These disks must therefore be plugged into a wall socket, which limits portability.

To use an external FireWire disk with an H2D, simply set up the disk as described in its manual and connect the two with a standard FireWire cable. See your hard disk manual for complete details.

To remove the disk, simply disconnect the FireWire cable.

A good way to use a FireWire disk with your digital camera is to shoot in untethered mode using the internal card and then, when the card is full, connect the disk and copy the contents of card to the disk. No computer is required. This enables you to backup your shots and then clear space on the card to keep on shooting. See 'Transferring Images' section for details.

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Tethered to a computer

When tethered to a computer, you can control many camera functions using the FlexColor software. Even if you never shoot while connected, you will probably connect the camera to your computer each time you want to download your images, though you might instead use a compact-flash card reader and/or connect your Image Bank CF or FireWire disk directly.

Connecting to a computer

To connect to a computer, simply attach a FireWire cable from the FireWire port on your computer to the port on the side of the sensor unit. The port on the sensor unit is protected behind a self closing flap. Simply align the cable connector as indicated by the illustration on the flap, then press the cable connector against the door to open it and continue to press the cable into the socket until it stops and is held in place.

Shooting with FlexColor running

When you are connected to a computer, the following rules apply:

- ***The destination medium and location are controlled from FlexColor.***
- ***All exposure settings, including ISO, aperture and exposure time, are controlled from FlexColor.***
- ***Focus is controlled only from the camera and auto-focus is disabled. You must therefore focus manually before shooting.***
- ***The screen and menu system on the sensor unit are disabled.***
- ***The sensor unit will take power from the FireWire cable if it is available (not all computers supply power here, notably laptops). This will help conserve the battery power of the H2D. However, you must still have a charged battery connected to the H2D; the camera body requires this battery in order to operate.***

When initiating a shot from FlexColor, the computer sends a signal to the sensor unit, which triggers the shutter and strobe lights (if any). The sensor unit then sends the image back over the FireWire connection to the computer, where it is displayed on the screen and saved as a 16-bit-per-color "3f" file in the currently selected folder of the computer hard disk.

3f is a proprietary Hasselblad format for storing raw captures. It contains the complete raw image exactly as it was captured by the camera, plus technical details that enable FlexColor to process and display the image correctly. It furthermore stores a complete history of the FlexColor settings that you have applied to each image and stores meta-data such as camera settings, image name, photographer, copyright, etc. The 3f format is similar to the DNG format used by the sensor unit when it saves images to its internal card, external hard disk or ImageBank-CF. When you load images into FlexColor from the camera or external media, the DNG files are converted into 3f format. If you prefer not to use FlexColor, then you can work with the original DNG files using any application that supports that format, including Adobe Photoshop.

Please refer to the FlexColor Software Reference manual for further instructions about taking pictures using FlexColor. The remainder of this chapter discusses how to use the sensor unit mounted to an H2D as a stand-alone digital camera with or without an ImageBank-CF or hard disk.

Working Stand-Alone or with an ImageBank CF or Hard Disk

There are no practical differences between shooting to the internal card or to an ImageBank-CF or hard disk. However, when several media are mounted, you must be sure to select the correct destination medium (see also Working with Media and Batches).

When you are not connected to a computer, control over the various sensor unit settings is provided via the built-in menu system (see also Working with the Menus). Most of the usual settings, such as focus, aperture, shutter speed and shutter release, are made using the standard camera-body controls, however.

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Removing from a computer

To remove the camera from a computer, simply disconnect the FireWire cable.

Initial general settings

Setting sensitivity ('speed') and white balance ('colour temperature')

The two digital settings that are most relevant for taking pictures are:

- ***the ISO setting*** *and*
- ***the white balance setting***

These are therefore available at the top level of the menu system so you can get to them quickly and easily. They are also shown on-screen in most preview modes, so you can easily keep an eye on them as your work .

Selecting the ISO rating

The camera can be set to use a light-sensitivity rating equivalent to ISO 50, 100, 200 or 400 film. Note, however, that the "natural" sensitivity of the CCD is ISO 50, so you will get best results with this setting if your lighting allows it. As with film, which becomes grainer at higher ISO ratings, the camera will reveal progressively more noise in pictures taken at higher sensitivities.

To set the rating, use the **MAIN MENU > ISO** entry in the sensor unit menu system

See The ISO Setting for a detailed procedure.

or

Make a setting on the camera grip menu. (**MENU > DIGITAL > ISO**)

Setting the white balance

When you are looking at a scene, your eyes naturally adapt to the ambient light colour (provided it is nearly white) — your brain then interprets all other colours according to how they relate to this "neutral" colour. However, this means that when you take a photo and then look at it later, you might not get the colours you expect because the camera has an absolute idea of what "white" is. The sensor unit therefore provides a white balance setting, which sets the hue that it should consider to be white and interprets all other colours proportionately.

Unlike many digital cameras, the H2D stores images as raw captures, which means they contain an exact image of the CCD (including its original mosaic colour filter). You are therefore able to adjust the white balance at any time to equal effect. When you set a colour balance, your setting is saved with the image as pair of light temperature and tone values — the colour values measured by each pixel are not altered. Your white balance setting affects the way colours are shown in the sensor unit screen and will still have the same effect when you first open images on your computer. You can change the setting later using FlexColor or another program that reads DNG files and the effect will be the same as though you had set it before shooting.

The H2D provides several options for establishing the white balance, including:

- ***A selection of presets for many common lighting situations, such as sun, shade and indoor lighting.***
- ***An adaptive function that measures the current lighting conditions by taking a shot of a neutral card and sets the white balance accordingly.***

The best solution for white balance will vary according to each individual situation and the amount of time available. Often, the automatic selection will work fine, while at other times a preset will work better—especially in scenes dominated by a particular strong colour. When you are working in a studio, with its controlled environment, you might get the best results using the adaptive function together with a neutral test card.

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To set the rating, use the **MAIN MENU > White Bal** entry in the sensor unit menu system. See **MAIN MENU > White Bal** for complete details, including detailed descriptions of the presets and other options.

or

Make a setting on the camera grip menu. (**MENU > DIGITAL > White balance**)

Working with media and batches

Whichever way you choose to store your images, they should be filed in batches for efficient workflow.

Organizing your work with batches

Batches help you to organize your shots as you work. They function just like folders on a computer. Batches have the following properties:

- ***When you create a new batch, you assign a name to it and it is created as a new folder.***
- ***When you copy images from a compact-flash card, each batch is saved as a subfolder on the destination disk.***
- ***When deleting multiple images, you are able to restrict your delete command so that it affects just a single batch.***
- ***When browsing images, you will only see images from the current batch.***
- ***You can change between batches by using the navigation controls of the sensor unit front panel.***
- ***The OLED shows the date on which each batch was created.***

Navigating media and batches

The camera always works with a **current medium** and a **current batch**. This is the location at which the camera will save all new shots and the location in which you can browse using the navigator button on the front panel. There are two ways of selecting the current medium and/or batch:

- ***Using the zoom and navigator buttons of the front panel. This method enables you to select any existing batch and is therefore useful even when only one type of medium is attached. This method is explained in the procedure below.***
- ***Using the MAIN MENU > Storage entry of the menu system to choose a medium. This is only relevant when more than one medium is attached (e.g., both a compact flash card and an ImageBank-CF). When you use this function, you will always go to the most recently created batch from the medium you select. Please see Selecting the Current Storage Medium for a complete description of this method.***

To select the current medium and batch using the browse controls:

1. *Press the zoom-out button repeatedly until you are all the way at the top zoom level. If you start with the single-image preview view, then you pass through the following views to get there:*
   - *Single-image preview*
   - *Four-thumbnail view*
   - *Nine-thumbnail view*
   - *Batch list*
   - *Media list*

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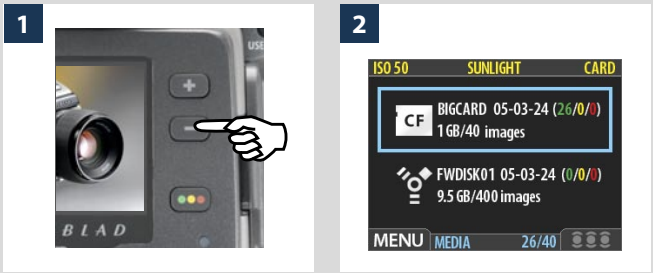

2. *The screen now shows a list of media devices currently connected to the sensor unit. Often, there is only one.*

   *Each medium shows a name, total size and an estimate for how many images will fit on it. To the right of the medium name is a set of three coloured numbers in parentheses. These indicate the total number of images of each approval status (green, yellow and red) that currently exist on that medium. For example, if you see a card that shows (**18** / **5** / **3**), then that card contains a total of 26 images: 18 green (**approved**), 5 yellow (**waiting**) and 3 red (**delete**).*
3. *If more than one medium is listed, then use △ and ▽ to highlight the medium you wish to use.*
4. *The currently selected medium shows a blue border.*
5. *Press the zoom-in button to zoom-in on the currently highlighted medium.*
6. *A list of batches on this medium now appears. Each batch shows a folder icon, a name and the date on which it was created. As with the media list, you can read the number of shots of each approval status that are stored in each batch.*
7. *As with media, use △ and ▽ to highlight the batch you wish to use.*
8. *The currently selected batch shows a blue border.*
9. *Press the zoom-in button to zoom in on the currently highlighted batch.*
10. *The nine-thumbnail view of your selected batch now appears.*

The current medium and batch are now set. Your next new shot will be stored here and the browse buttons will show only the images from this batch.

Creating new batches

You can create any number of batches on each medium. To create a new batch, first make sure you have selected the correct current medium (see Navigating Media and Batches) and then use the **MAIN MENU > STORAGE > BATCH** entry of the menu system to create the new batch. See Creating Batches for a detailed procedure.

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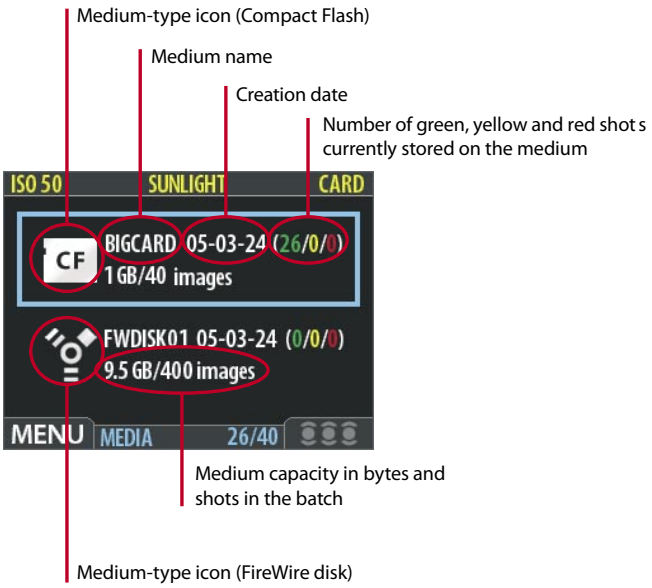
The **MEDIA** *list.*

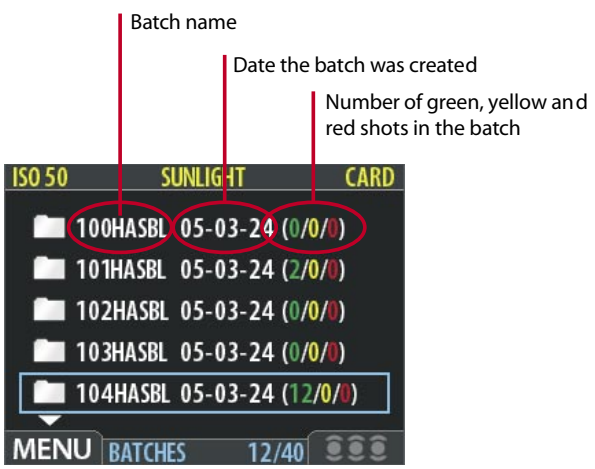
In this example a CF card and a FireWire disk are illustrated and therefore connected.

The blue frame around the CF card symbol tells you that captured images will be saved to the CF card and not the FireWire disk. This is the **Current Medium**



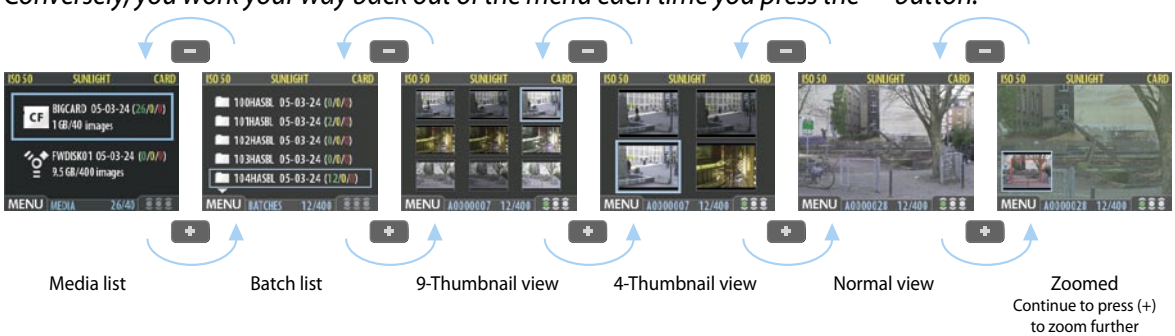
The **BATCH** *list.*

The blue frame around the middle folder tells you that it is the **Current Batch.**



You work your way deeper into the menu branching off the selected item (framed in blue) each time you press the '+' button to view media, batch, thumbnail view etc.

Conversely, you work your way back out of the menu each time you press the '–' button.



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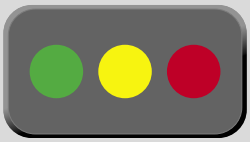
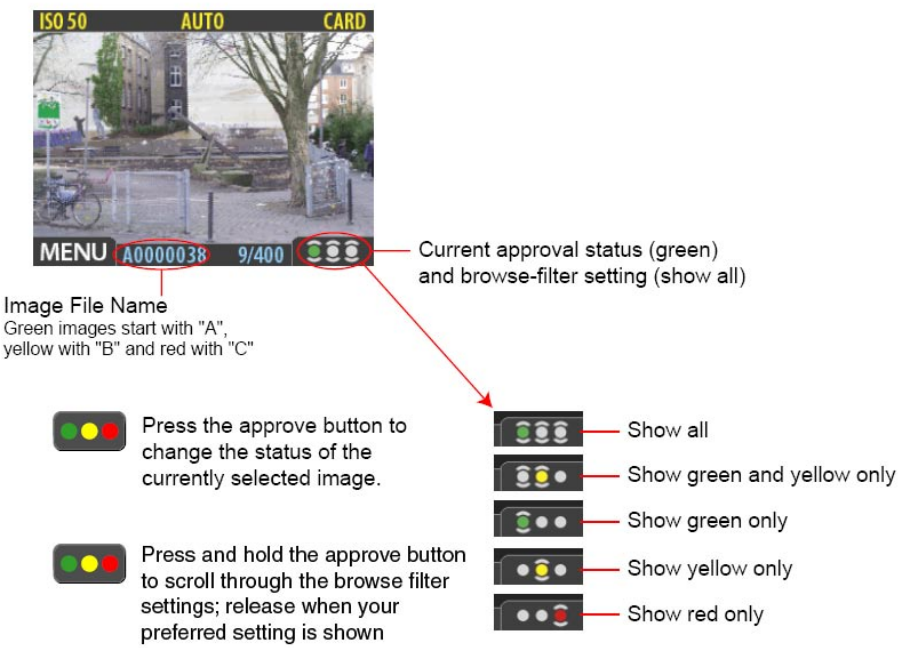


Using Instant Approval Architecture

The Instant Approval Architecture system helps you to evaluate your images as quickly as you take them. It works by supplying immediate audio feedback, which tells you instantly whether each new picture is exposed correctly or likely to be over- or underexposed. Thereafter, the system enables you to assign each image one of three status levels. Though you can use the system any way you like, the intention (based on the 'traffic light' principle) is that you should assign the levels as follows:

- ***Green for your best shots***
- ***Yellow for images that need closer inspection***
- ***Red for images that should probably not be used.***

Please note, when the current storage medium is full, red-status images will be deleted (one at a time) to make room for new shots. You can continue shooting until no red-status images remain; if you then try to take additional new shots you will get a medium-full message.


ISO 50
AUTO
CARD
MENU
A0000038
9/400
Current approval status (green) and browse-filter setting (show all)
Image File Name
Green images start with "A", yellow with "B" and red with "C"
Press the approve button to change the status of the currently selected image.
Press and hold the approve button to scroll through the browse filter settings; release when your preferred setting is shown
Show all
Show green and yellow only
Show green only
Show yellow only
Show red only

One of the greatest advantages of digital photography compared to film is that it costs no more to shoot 100 images that it does to shoot one. Photographers therefore tend to take many more pictures when shooting digitally. By assigning approval levels as you work, it can be much easier to sort through and select images when you get back to your computer.

Standard Instant Approval workflow

The standard method of working with the Instant Approval Architecture is as follows:

1. *Take a shot.*
2. *The camera analyzes the shot to find out if it seems to be over- or underexposed. If it suspects a problem, it does the following:*
   - ***Provides audio feedback by making a warning sound, which immediately alerts you to a possible problem even if you are not looking at the screen.***
   - ***Downgrades the approval status to yellow.***

Note that some shots may trigger the warning even though they are exposed according to your intentions. You should consider these warnings only as a guideline. This feature can be turned off.

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3. *If no problem is detected, then the image is saved with green status.*

If you set Approval to 'Auto', all images will be stored as Green if judged as correct and Yellow if judged as technically doubtful. No images are ever stored as Red automatically!

4. *When you are browsing through your shots, keep an eye on the approval status of each and consider whether you should promote or demote each shot based on its appearance on the preview screen. You can also apply a browse filter to, for example, browse only red shots when looking for images to delete or to browse only green shots to make sure you have a good version of each shot that you need.*
5. *When you begin working with the images on your computer, use the approval status as a guide for organizing your work. For example, you might begin by opening and optimizing the green shots and then go to the yellow shots only if you still need more images and then, finally, check the red shots as a last resort.*

Note that the system is very flexible so you can use it in any way that you like. For example, you can set the camera to assign all new images a yellow or green status regardless of the exposure warning. Be careful when assigning red status because red images may be deleted if the current storage medium becomes full.

Reading and changing the approval status

The current approval status of each shot is indicated in two ways:

- ***In most preview modes, the current status is indicated by a coloured dot in the bottom-right corner of the screen.***
- ***Each image is given a name that indicates its approval status. Approved (green) image names start with "A" (e.g., "A0000043"); warning (yellow) images start with "B" (e.g., "B0000043"); and images marked for delete (red) start with "C". Because of this naming convention, you will also be able to sort your image files by status after you have copied them to your computer (e.g., by listing the folder by file name).***

See also page 43 for a diagram showing where you can read the image name and approval status on the screen.

By keeping an eye on the file name and/or coloured dot as you browse your images at the single-image, four-thumbnail or nine-thumbnail level, you can easily see the current approval status of each of them.

To change the approval status of the currently displayed/selected image, simply press the approval button until the desired approval status is shown.

Note that you can set the camera to filter by approval status as you browse, which means that some images may be hidden (though they are still there). See "Browsing by Approval Status", below, for details about how to work with the filter.

Be careful when assigning red status because red images may be deleted if the current storage medium becomes full.

Browsing by approval status

You can set the camera to browse by approval status, which means, for example, that you will see only green-status images as you browse a batch (or both green and yellow, or only red, etc.). The current filter setting is indicated on-screen, as illustrated page 44 Filtered images are still there, but they will not be shown until you change the filter setting. Also, if you change the status of an image, the image may 'disappear' if it no longer passes the filter. For example, if you have set the camera to browse only green-status images and then change an image to yellow status, that image will not be shown again until you change the browse filter.

There are many ways to make use of this feature. For example:

- ***Set the filter to show only yellow images. Then step through each image and decide whether any of them should be promoted to green or demoted red.***

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- ***If you are running out of space, set the filter to show only red images and then step through to find shots you can delete.***
- ***Set the filter to show only green images. Then step through to make sure you have at least one 'good' example of each shot that you need.***

There are two ways to set the browse filter:

- ***Press and hold △ until the filter you want to use is shown by the indicator (see also page 44).***
- ***Use the* MAIN MENU > Browse *entry of the menu system. See Setting the Browse Filter for a detailed procedure.***

Deleting by approval status

There are many ways to delete images, including one-at-a-time and multiple delete by batch, media and/or approval status. When deleting several images, you first pick the medium or batch from which you want to delete and then use the **MAIN MENU > STORAGE > Delete** entry to specify the status of the images to delete. You can choose to delete:

- ***All red-status images from the selected batch or medium***
- ***All red- and yellow-status images from the selected batch or medium***
- ***All images from the selected batch or medium***

See MAIN MENU > Delete for detailed procedures describing each of the delete options.

Setting the default status

As outlined in "Standard Instant Approval Workflow", the camera normally works by assigning a green status to all images that pass a basic exposure test and a yellow status to all images that fail the test. However, you can change this behaviour if you prefer an alternative workflow. You have the following options:

- **Auto***: works as described in Standard Instant Approval Workflow .*
- **Green***: gives all new images a green status, regardless of the exposure warning.*
- **Yellow***: gives all new images a yellow status, regardless of the exposure warning.*

Regardless of this setting, audio feedback will still be provided if an image is judged to be badly exposed.

Use the **MAIN MENU > BROWSE** entry to make this setting. See also Setting the Default Approval Status for a detailed procedure.

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Viewing, Deleting and Transferring Images

Basic image browsing

The large, full-colour OLED display enables you to inspect your shots while you are still on-location. The display offers full-screen previews, high-magnification zoom, two levels of thumbnails and analysis tools including a full histogram and camera settings.

When you first turn on the camera, the display opens in standard browse mode, showing the last image taken (if any) for the current medium and batch. Likewise, after each new shot, the display shows a preview of the shot.

To browse the images of the current batch, simply press the left ◁ and right ▷ arrows of the navigator button.

Choosing the current batch

When you browse using the navigator button, you will only see images from the current batch on the current medium. To view another batch, you must navigate to it by zooming out to the batch or media level and then zooming in on the appropriate folder. See Navigating Media and Batches for complete details about how to select the current medium and/or batch.

Browsing by approval status

It is possible to set the camera to browse only images of one or more specific approval levels from the current batch. You can use this, for example, to review all of your red-status shots to make sure you don't need them or to review all of your yellow-status shots to decide whether they should be moved to green or red status. When you use the browse filter, you will not see images excluded by the filter, but they are still there.

See Using Instant Approval Architecture for complete details about how to check and set the browse filter.

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Zooming in and out

As illustrated below, you can use the (+) and (-) buttons to see various levels of detail in your images. You can furthermore zoom all the way out to view and select batches and media.

Zooming in for more detail

The preview display has a much lower resolution than your images. You can therefore zoom very far into the images to inspect small details. To do this:

1. *Browse to the image you wish to zoom into with the navigation button.*
2. *Press the zoom-in (+) button to zoom in one step. The screen updates to show both a zoomed image and a thumbnail image that includes a red box outlining the portion of the images currently shown.*

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3. *You can now do the following as needed:*
   - *Use the navigator button to move the zoom area if you wish to inspect a different part of the image.*
   - *Zoom further by pressing the zoom-in (+) button more times.*
   - *Zoom back out one step by pressing the zoom-out (-) button.*
4. *When you are done, press and hold the zoom-out (-) button to return to browsing at the standard zoom level.*

Thumbnail views

Preview thumbnails are small versions of each preview, sized to fit either four or nine images on the screen at once. Use them to get an overview of your work so far and to help find specific shots.

To see the thumbnails, start with the standard preview display and press the zoom-out button once to see four thumbnails or twice to see nine. t

When viewing thumbnails, the selected image shows a blue border. When an image is selected, you can zoom in on it using the zoom-in button or delete it using MAIN MENU > STORAGE > Delete (see also MAIN MENU > STORAGE > Delete for a detailed procedure). Use △ and ▽ to scroll the thumbnails when you have more shots than can be shown.

If you continue to zoom out beyond the nine-thumb view, you will come to the batch list and then to the media list. You can use this to select the current medium and batch for browsing and for storing new images. See Working with Media and Batches for details.

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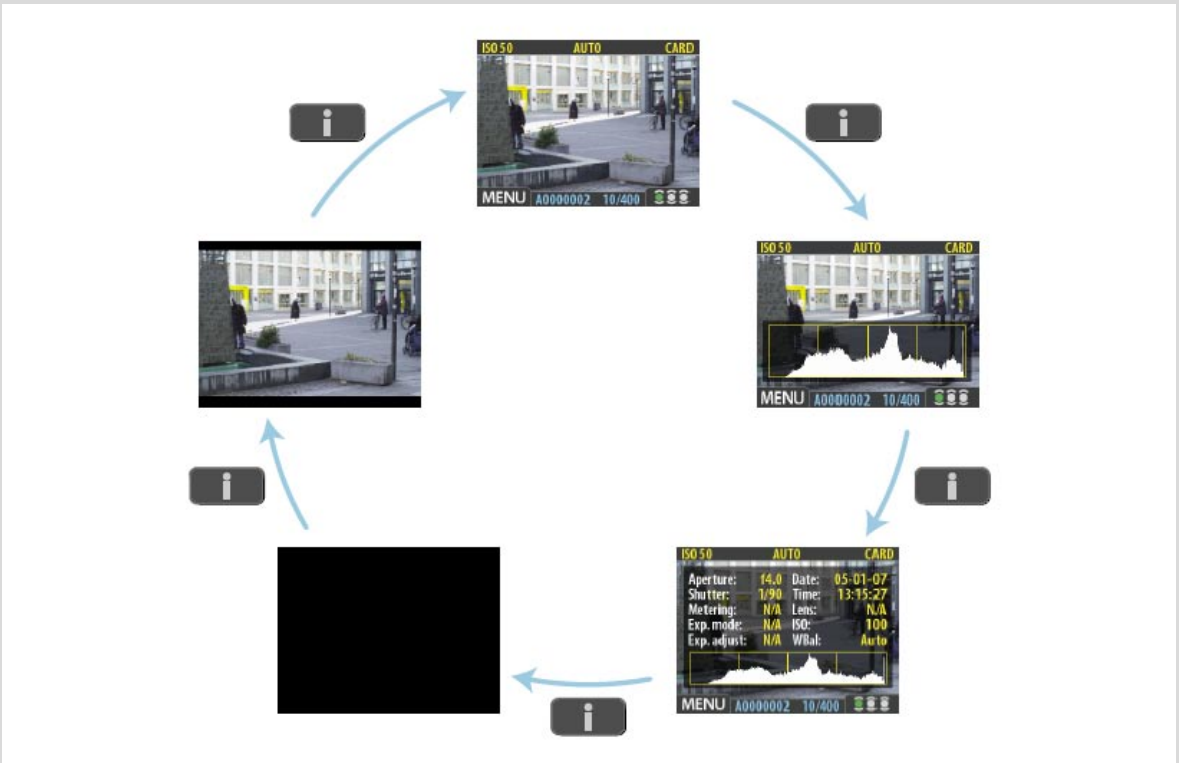

Preview Modes

Choosing the Preview mode

You can use the view-mode button to cycle through the available preview modes.

The preview screen works in several different modes:

- ***Standard preview:***
  shows a preview image surrounded by a display of few important settings.
- ***Histogram:***
  shows a preview image overlaid with a histogram.
- ***Histogram and full details:***
  shows a preview image overlaid with both a histogram and camera-setting details.
- ***Battery saver:***
  turns off the screen, but you can still use the menus and take pictures.
- ***Full-screen preview:***
  shows the preview only, with no frame or settings information.

To cycle through the various modes, press the view-mode button on the front panel. The order is circular, as listed above. Each mode is described in detail in the sub-sections below.

Regardless of the current mode, if you zoom in on the image or zoom out to the thumbnails, the display reverts to showing the "standard" preview frame, which shows information about the current image and camera settings around the edges. When you return to the standard zoom level, however, you will then also return to your last-selected preview mode.

Note that the screen can also operate in menu mode, which does not show a preview, but enables you to make sensor unit settings. To enter menu mode, press the menu button. See Working with the Menus for details.

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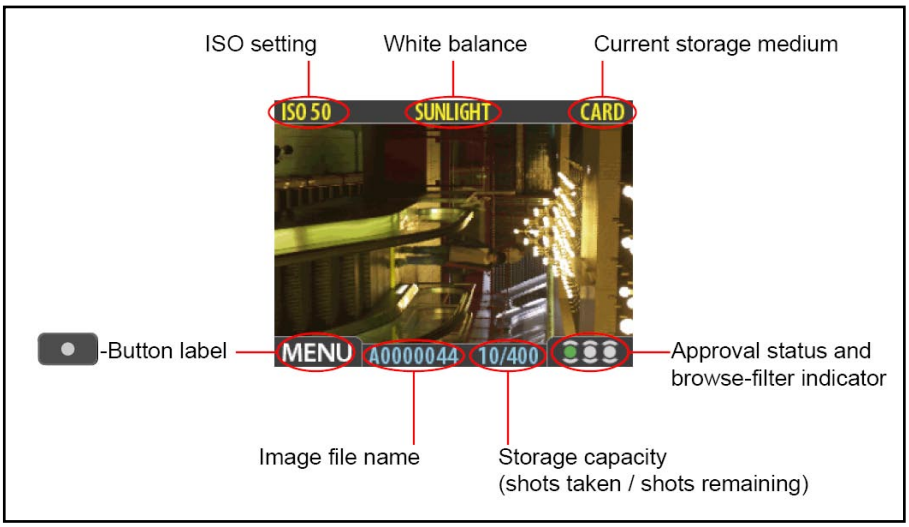
The standard preview display

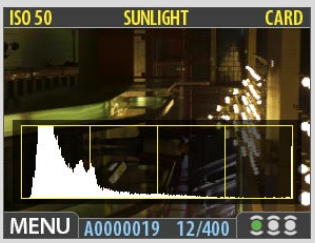
The standard preview display is the one shown when you first turn on the camera. It features a preview of your most recent shot and basic information about the sensor unit settings and the image itself.



Using the histogram

The histogram provides a graph that indicates the total number of pixels at each brightness level, with brightnesses going from black on the left to white on the right. It is a valuable tool for evaluating your exposure. A well-exposed shot usually has a full range of levels, while under- and overexposed shots tend to show levels concentrated at the left or right part of the scale, respectively.

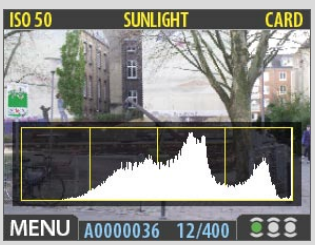
For example:



A

Underexposure

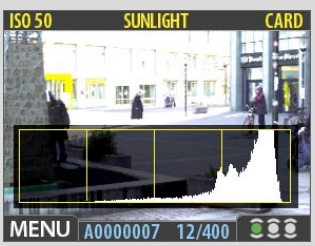
A histogram that is cut-off at the left with few pixels elsewhere indicates a likely under-exposure. Many details will be lost in the shadows.



B

Even exposure

A histogram that is spread across the full range indicates a likely good exposure. There may still be a few pixels at the extremes, indicating a few spectral highlights and saturated shadows, but this is often normal in a good exposure.

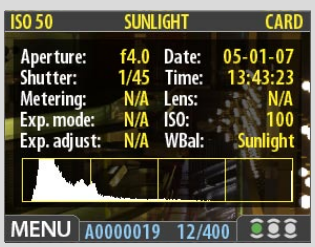


C

Overexposure

A histogram that is cut-off at the right with few pixels elsewhere indicates a likely over-exposure Many details will be lost in the highlights

The histogram is only an indicator thast should be interpreted—there are many situations in which a questionable histogram will match an exposure that is perfectly fine for the intended effect (and vice-versa).



D

Full-details mode

In full-details mode, you can read a complete list of camera settings, plus see the histogram and, in the background, a darkened preview of the image.

The camera-setting details are stored with the image, so you can refer to them using FlexColor even after you have loaded the image to your computer and stored it in your archive.

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Battery-saver mode

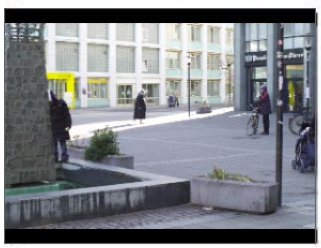
In this mode, the sensor unit is fully responsive, so you can take pictures but the screen is not lit up, thereby saving battery power.

You can enter the menu system while shooting in this mode (which activates the screen until you exit the menu system again) but the approval, zoom and navigator buttons have no effect.

You can also save battery power by turning down the brightness and/or contrast of the display using the entries of the MAIN MENU > SETTINGS > USER INTERFACE > DISPLAY menu. See Making Display Settings for details.

Other ways to save battery power include setting a display time-out and/or a power-down time-out (each of these is disabled by default). Use MAIN MENU > SETTINGS > USER INTERFACE > Power Down to set a power-down time out. Use MAIN MENU > SETTINGS > USER INTERFACE > DISPLAY > Timeout to set a display time-out. See also Entries of the USER INTERFACE Menu and Making Display Settings for details about these settings.

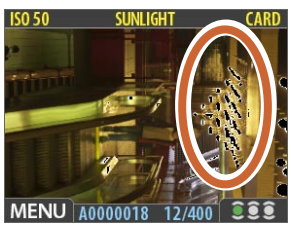
Full-Screen Mode



In full-screen mode, you can browse your images at standard preview resolution without any distracting data surrounding them.

Because the current approval setting is not shown in full-screen mode, the approval button has no effect. This will prevent you from accidentally assigning the wrong status without knowing it.

Overexposure indicator



Though the histogram shows you when some of your pixels are overexposed, it does not tell you which ones. In a shot with many bright areas, it can be hard to know whether the key parts of your image are just bright or completely overexposed. To help you find them, the sensor unit can provide an overexposure indicator, which shows precisely which areas of your shot are overexposed (i.e., pixels that are at maximum brightness, thereby eliminating details).

When enabled, the overexposure indicator flashes the overexposed pixels from black to white.

To enable or disable the overexposure indicator, use the **MAIN MENU > SETTINGS > USER INTERFACE > Mark Overexp**. entry.

Please see Entries of the USER INTERFACE Menu for a detailed procedure.

There is also a one-button shortcut for toggling the overexposure marker on and off. To use it, press and hold ▽ until the indicator is working as you would like (enabled or disabled).

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Deleting images

The sensor unit enables you to delete images using any of the following techniques:

- ***Delete the currently selected image only.***
- ***Delete all images from the current batch***
- ***Delete all images from the current medium***
- ***Delete all red-status images from the current batch***
- ***Delete all red-status images from the current medium***
- ***Delete all red- or yellow-status images from the current batch***
- ***Delete all red- or yellow-status images from the current medium***

To delete a single image, navigate to and select the target image in the browse window, open the menu and select **MAIN MENU > Delete**.

There is also a one-button shortcut for deleting single images. To use it, select a target image and then press and hold the ▽ until the confirm-delete dialog opens.

Another way of working is to simply assign unwanted images as Red. In this way, you retain the option (for a while) of changing your mind later while allowing the system to automatically delete the unwanted images as the storage medium fills up.

To delete several images from a given batch or medium, first navigate to and select the batch or medium and then open the menu and select one of the following:

- **MAIN MENU > STORAGE > DELETE > All Red**
- **MAIN MENU > STORAGE > DELETE > All Red & Yellow**
- **MAIN MENU > STORAGE > DELETE > All**

You will always be asked to confirm each delete operation.

For complete details about how to use the menu system to delete single or multiple images, please see **MAIN MENU > STORAGE > Delete** .

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Transferring Images

Transferring to a computer

To transfer images stored on the compact-flash card to your computer, simply connect the camera to a computer using a FireWire cable and then run FlexColor, which will automate the process. See your FlexColor manual for details.

See also Connecting to the Computer for details about how to connect to a computer.

Another way to transfer images to your computer is to remove the compact-flash card from the sensor unit and insert it into a compact-flash card reader connected to a computer. See Using Compact Flash Memory Cards for details about how to remove and insert the card.

Images that you have stored on an ImageBank-CF or FireWire hard disk can also be transferred to a computer by connected the external disk to the computer with a FireWire cable and then copying the files using the file system. See your ImageBank-CF or hard disk documentation for details.

Transferring to an external hard disk or ImageBank-CF

The H2D enables you to work in the field, shooting to the internal card, and then transfer images to an external hard disk even if you do not have a computer with you. In this way, you can combine the total flexibility of shooting without any external connections with the massive storage capacity of an external hard disk.

When the internal card gets full, just connect the camera to a FireWire hard disk or ImageBank-CF, transfer the images, clear the card and return to shooting. The process is nearly as fast

1. *Use a FireWire cable to connect the sensor unit to the external disk and turn both units on.*
2. *On the sensor unit, open the menu and select* **MAIN MENU > STORAGE > Copy**. *See also Copying Images from a Card for a detailed description of how to use the menu system to do this.*
3. *All batches from the internal card are then copied to the external disk. A new folder is created for each copy, so you will never overwrite previous copies, even if they contain identical images.*

Images are not automatically deleted from the card after copying. If you want to delete some or all images to free up some space, then use **MAIN MENU > STORAGE > Delete**.

See also **MAIN MENU > STORAGE > Delete** .

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Working with the menus

The preview screen on the sensor unit enables you to view your images and navigate the menu system through which you can make sensor unit settings.

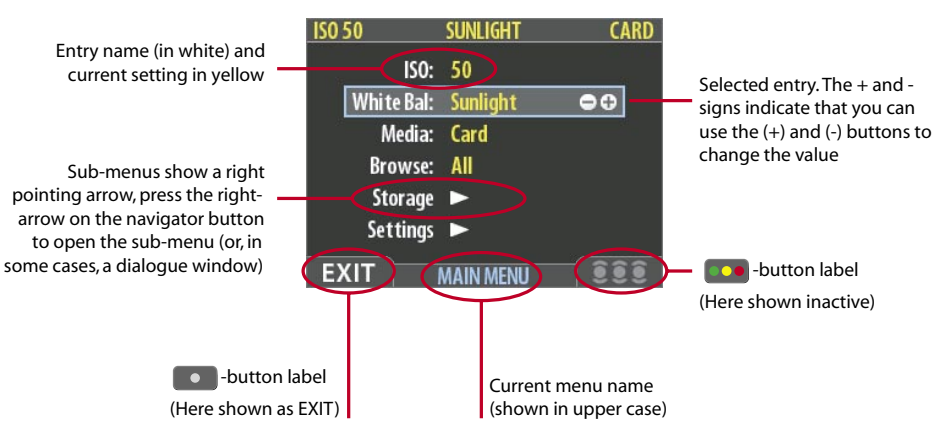
Some of the settings provided by the sensor unit menus can also be made using the controls on the grip. For settings available in both places, it does not matter whether you use the sensor unit menus or camera body menus—the effect is the same.

Navigating the menu system

To get to the menus, press the menu (**MENU**) button on the front panel. The menu then pops up. Use the navigator button to scroll through the menu items and use the (+) and (-) buttons to change the selected setting. See also The Control Panel for button diagrams and descriptions.

Any given menu may include both entries and/or sub-menus.

- ***Entries are settings that are available at the current menu level; they show their current settings next to the entry name. To make an entry setting, use the navigator button to select the entry and then use the (+) and (-) buttons to select the desired option for that entry.***
- ***Sub-menus do not have settings at the current level; they lead to another menu or dialog. Sub-menus show a right-pointing triangle instead of a value. To open a sub-menu, use the up/down arrows of the navigator button to select the sub-menu and then press the right side of the button to open it. There can be several levels of sub-menus.***
- ***When you are in a sub-menu, you can go back to the parent menu by pressing the left arrow of the navigator button.***
- ***Some sub-menus open a dialog. Dialogs require that you either make a setting or exit the dialog (e.g., to confirm or cancel a delete command). The left arrow will have no effect.***


Entry name (in white) and current setting in yellow
Sub-menus show a right pointing arrow, press the right-arrow on the navigator button to open the sub-menu (or, in some cases, a dialogue window)
ISO 50
SUNLIGHT
CARD
ISO: 50
White Bal: Sunlight
Media: Card
Browse: All
Storage
Settings
EXIT
MAIN MENU
Selected entry. The + and - signs indicate that you can use the (+) and (-) buttons to change the value
-button label
(Here shown inactive)
-button label
(Here shown as EXIT)
Current menu name
(shown in upper case)

In this manual, when we describe items from the menu system, we use a shorthand text convention of the form: **MENU > SUB-MENU > Entry**. So, for example, when the text says to select the **MAIN MENU > SETTINGS > USER INTERFACE > Language entry**, you should do the following:

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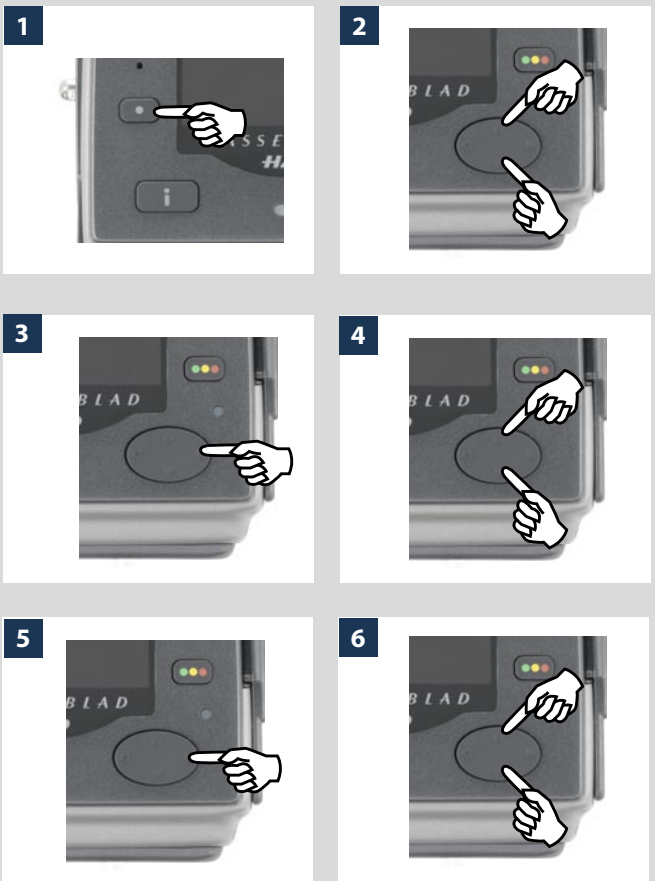

1. *Press the menu (***MENU***) button to open the menu.*
2. *Use △ and ▽ to select the* **SETTINGS** *sub-menu.*
3. *Press ▷ to open the* **SETTINGS** *menu.*
4. *Use △ and ▽ to select the* **USER INTERFACE** *sub-menu.*
5. *Press ▷ to open the* **USER INTERFACE** *menu.*
6. *Use △ and ▽ to select the* **Language** *entry, which shows the current language setting.*
   - *At this point, you will use the (+) and/or (-) buttons to choose a setting for the selected entry.*
   - *When you are done, press the menu (***EXIT***) button again to close the menu.*

Note also that the menu and approval buttons are situated just outside the bottom-left and bottom-right corners of the screen. As you work through the various menu entries, the screen shows a label for each of these buttons. In the text, we therefore give the generic name for the button and the screen name. For example we will refer to: the menu (**MENU**) button, the menu (**EXIT**) button, or the approval (**OK**) button.

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Menu system overview

The main menu contains those settings that you will need to access most often as you work on an assignment. It also provides sub-menus that give you access to all other settings, most of which you will need less often.

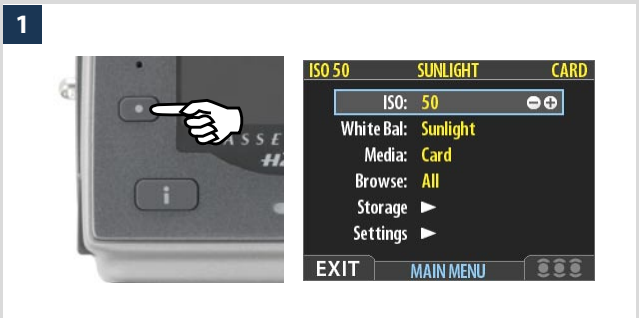
The ISO Setting

You are able to set the light sensitivity of the camera to match an equivalent ISO rating for standard film. The light meter inside the camera body will use this setting when making automatic exposure calculations for aperture and/or shutter settings.

The ISO rating can be set to 50, 100, 200 or 400.

To set the ISO:

1. *Select the* **MAIN MENU > ISO** *entry. This is the top entry of the top menu, so it will be selected by default when you enter the menu system. (See also Navigating the Menu System for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the available ISO settings until the setting you want is shown.*
3. *Either move on to another setting by using the navigator button or press the menu button to exit the menu system and keep your setting.*



Note that the default sensitivity of the CCD sensor is ISO 50. Higher ISO settings result in progressively noisier images (just as higher ISO film become grainer), so we recommend that you use the lowest ISO setting possible for your lighting situation.

The White Bal Setting

Use this entry to set the white balance saved with the image and applied to the preview. See **MAIN MENU > White Bal** for details.

Selecting the current storage medium

The storage setting controls where your sensor unit will store new images and which stored images will be visible in the browse window.

Often, you have just one type of storage media available—the internal compact-flash card. However, if you have several media attached (e.g., a card and one or more external disks), then you may need to switch between them.

If your selected storage medium has more than one batch (folder) on it, then the batch selected when you use the storage menu entry will be the one you most recently created.

Note that you can also select media using just the (+) and (-) buttons while browsing images. This method also enables you to select a batch as you zoom in from media to batch to thumbnails to preview. See **Navigating Media and Batches** *for complete details about this method.*

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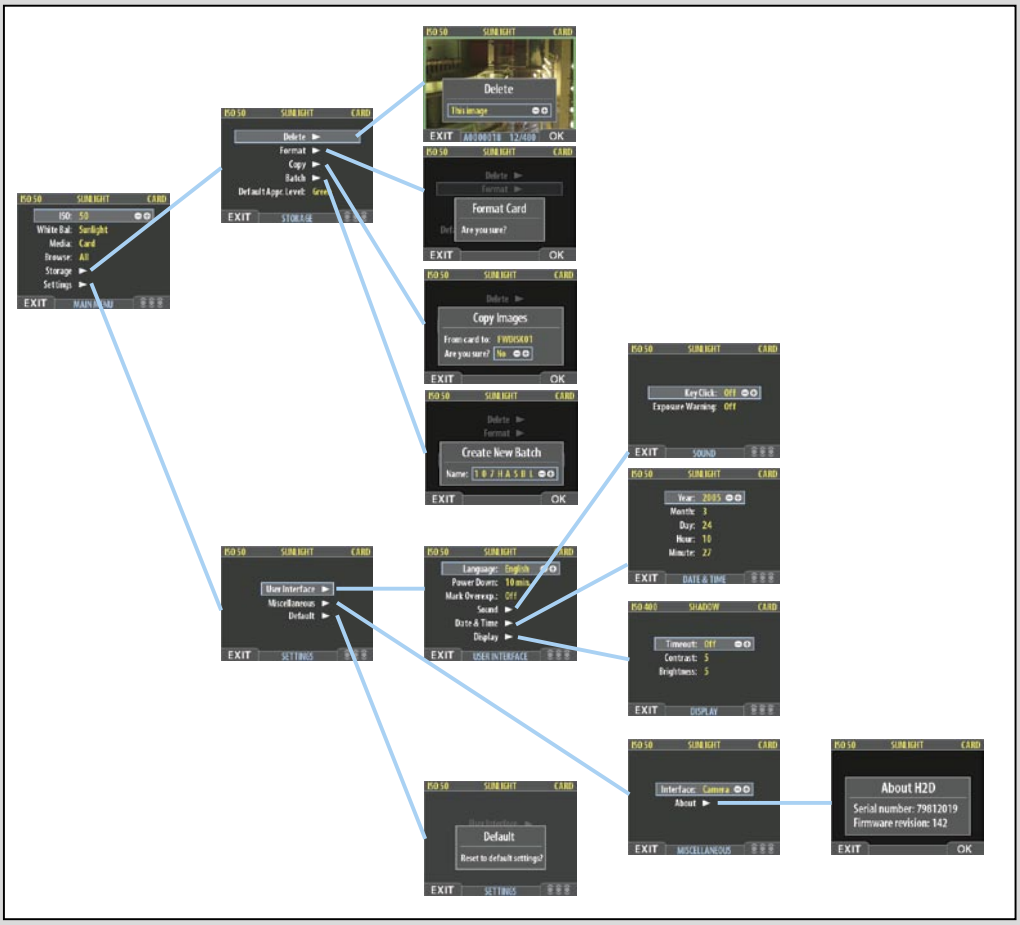
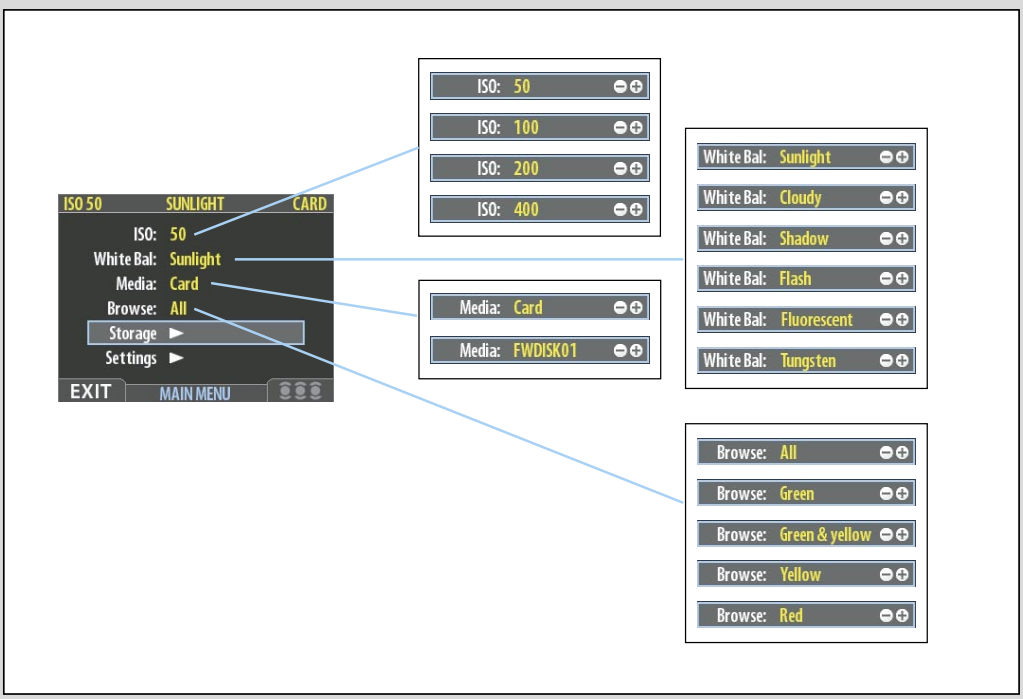


Menu structure



Entries of the main menu

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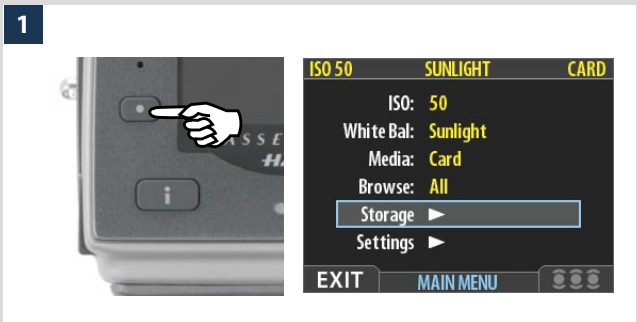

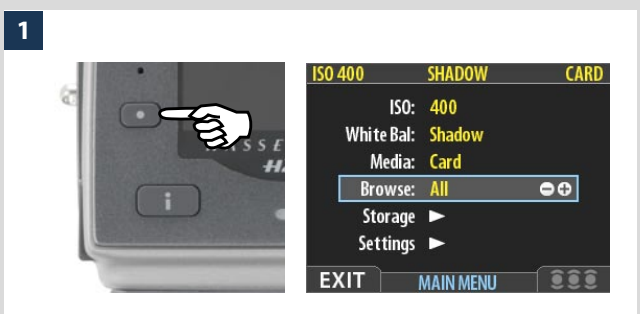

To select the medium to which to save new shots and from which to browse previous shots:

1. *Select the* **MAIN MENU** > **MEDIA entry**. *The current setting is displayed here. (See also Navigating the Menu System for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the available media until the name for destination/source you wish to use is shown.*
3. *Either move on to another setting by using the navigator button, or:*
4. *Press the menu button to exit the menu system and keep your setting.*

Note that you can also select media using just the (+) and (-) buttons while browsing images. This method also enables you to select a batch as you zoom in from media to batch to thumbnails to preview. See **Navigating Media and Batches** for complete details about this method.

Setting the browse filter

The browse filter compliments the instant-approval system by enabling you to browse through images according to their approval status. You have the following choices:

- ***All:*** *browses all of the images in the current batch, regardless of their approval status. This is the default.*
- ***Red:*** *browses only red-status images from the current batch. These are images that you have marked for likely deletion. You might browse these images to make sure you have not eliminated any usable images and/or to find images that you can delete to make room for new shots.*
- ***Green:*** *browses only green-status images from the current batch. These are either new shots that did not trigger an exposure warning or shots that you manually assigned to green after overriding an exposure warning.*
- ***Green & Yellow:*** *browses green and yellow-status images, but does not show red-status images. These are probably images that you have either decided to keep or not yet checked for approval status.*

For more information about using the instant-approval system, please see Using Instant Approval Architecture .

There is a one-button shortcut for setting the browse filter while you are looking at your images. To use it, press and hold the approve button until the filter indicator shows the option you wish to use. Alternatively, you can use the full procedure described below.

To set the browse filter using the menus:

1. *Select the* **MAIN MENU** > *Browse entry. The current setting is displayed here. (See also Navigating the Menu System for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the filter options (described above) until you have selected the filter you wish to use.*
3. *Either move on to another setting by using the navigator button or press the menu button to exit the menu system and keep your setting.*

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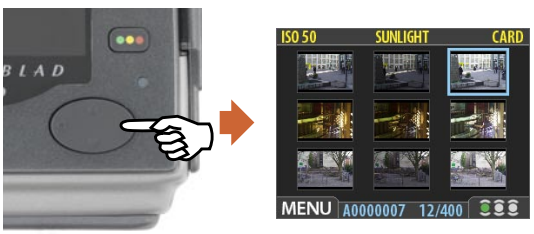
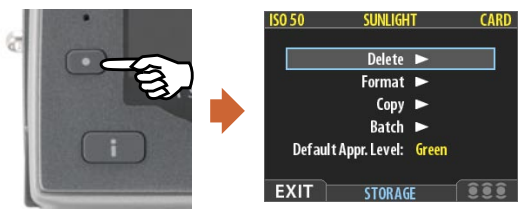
1

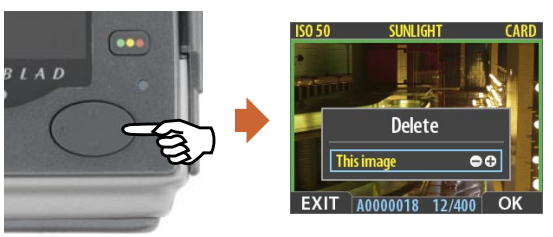
2



3

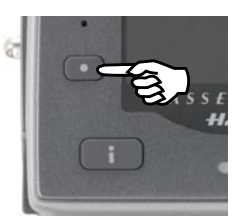


4



5

6



MAIN MENU > STORAGE > Delete

Use the **MAIN MENU > STORAGE > Delete** menu to delete images that you do not need, thereby making room for more captures. There are several ways to delete images:

- ***Delete a single selected image***
- ***Delete all images from a given batch***
- ***Delete all images from a given medium***
- ***Delete all images of a specified approval status (e.g., red) from a given batch or medium.***

Deleting single images

There is a one-button shortcut for deleting images. To use it, first select the image you want to delete and then press and hold the ▽ button for a second or so. You will then be asked to confirm the delete. Alternatively, you can use the full procedure described below.

To delete a single image:

1. *With the menu closed (e.g., with a preview image showing), use the (+) and (-) buttons to go to the single-image, four-thumbnail or nine-thumbnail view.*
2. *Use the navigator button to select the image you wish to delete. When you are viewing thumbnails, the selected image has a coloured border around it. When you are viewing singe images, the selected image is the one currently shown.*
3. *Select* **MAIN MENU > STORAGE > Delete**. *(See also* **Navigating the Menu System** *for details about how to find this setting.)*
4. *Press ▷ to open the Delete Image dialog. You are now shown a full-size preview of the selected image and asked to confirm the delete.*
5. *Press OK*
6. *You now return to the main menu. Either move on to another setting by using the navigator button or press the menu button to exit the menu system.*

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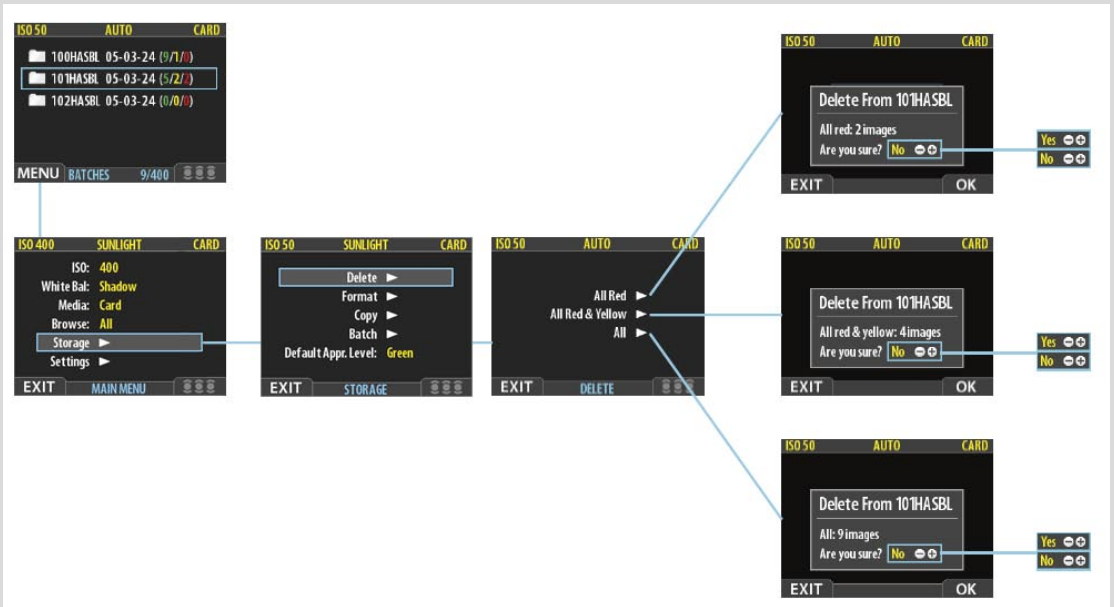
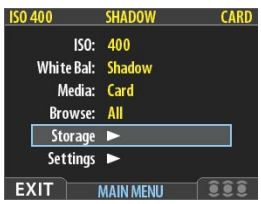
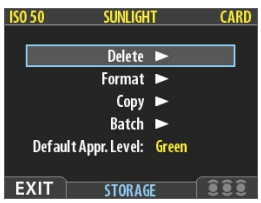


Menus for deleting several images from a selected batch.

1



2



3

Deleting several images from a selected batch

To delete several images from a selected batch:

1. *Starting at the single-image preview display, Select* **MAIN MENU > STORAGE > Delete**. *(See also* **Navigating the Menu System** *for details about how to find this setting.)*

2. *Use ▷ to to enter the Delete submenu.*

3. *Use (+) and (-) to select:*

   This image - *deletes the current image only*

   All Red in batch - *deletes all red images in the current batch*

   All yellow/red in batch - *deletes all yellow and red images in the current batch*

   All in batch - *deletes all images in the current batch*

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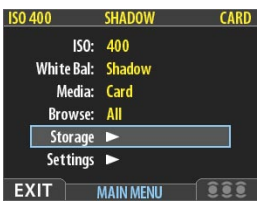

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4. *Press OK to confirm the delete. To exit without delete, press EXIT.*

5. *You now return to the main menu. Either move on to another setting by using the navigator button or*

6. *Press the menu (**EXIT**) button to exit the menu system.*

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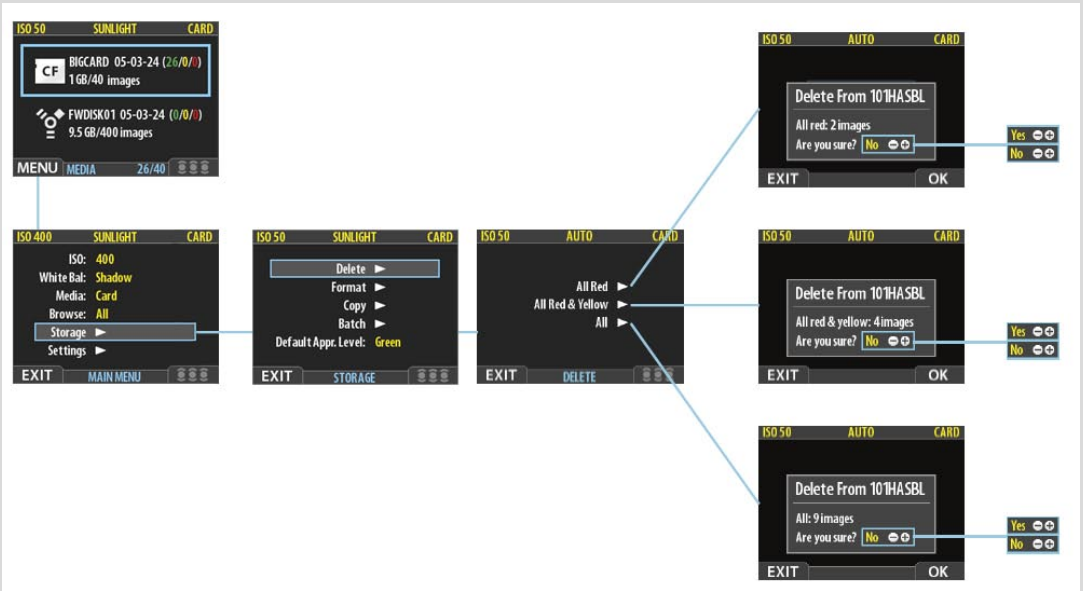
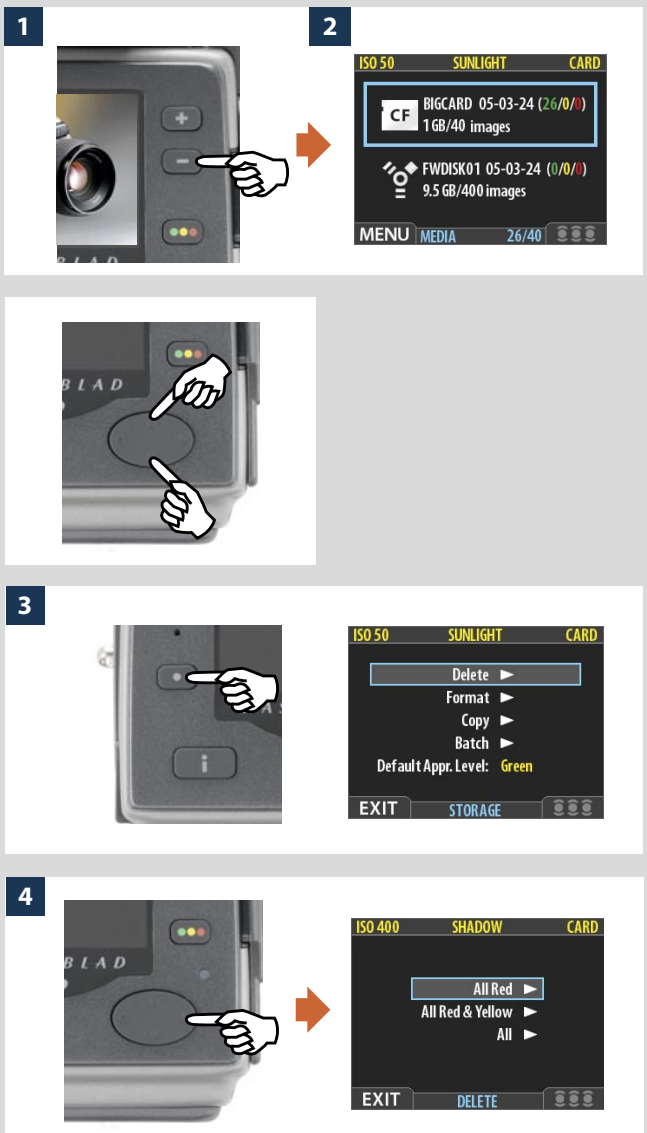


Menus for deleting several images from all batches from a selected storage medium.



Deleting several images from a selected medium

To delete several images at once:

1. *Starting at the single-image preview display, press the zoom-out (-) button three times to go to the list of media.*
2. *Use △ and ▽ to select the medium from which you wish to delete. You will be deleting from all batches stored on that item.*

Note that both each listed medium show a set of three coloured numbers in parentheses to the right of the medium name. These indicate the total number of images of each approval status (green, yellow and red) that exist on the medium. For example, if you see a medium that shows (18/5/3), then the medium contains a total of 26 images: 18 green (approved), 5 yellow (waiting) and 3 red (marked for probable delete).

3. *Select* **MAIN MENU > STORAGE > Delete.** *(See also* **Navigating the Menu System** *for details about how to find this setting.)*

4. *Press ▷ to open the Delete Image dialog.*

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5. *You must now select the approval status that you wish to delete. All images from the selected medium that are also of the status that you select here will be deleted by the operation. Use △ and ▽ to select* **All Red**, **All Red & Yellow** *or* **All**.

6. *Then press ▷ to open the delete dialog for your selected status.*

7. *You are now asked to confirm the delete.*
   - ***To confirm, press the (+) button to change the status to Yes and then press the approve button to execute the delete.***
   - ***To cancel, press the menu button to exit; or press the (-) button to set the status to No and then press the approval button to cancel.***

   You now return to the main menu. Either move on to another setting by using the navigator button or
8. *Press the menu (EXIT) button to exit the menu system.*

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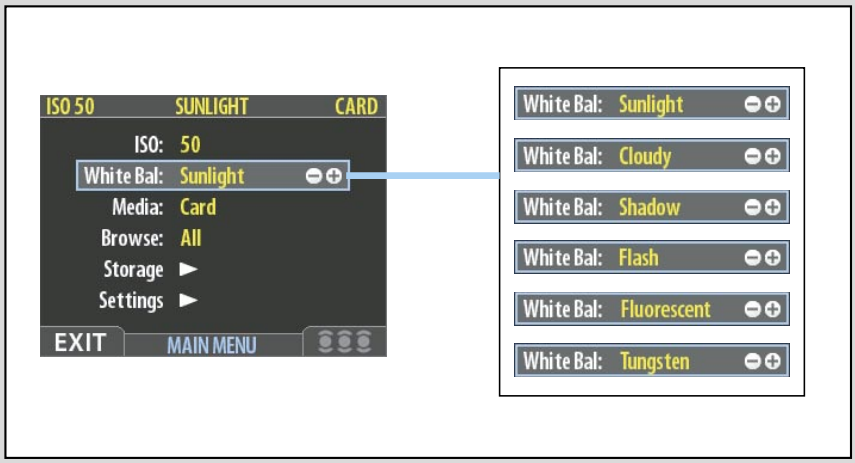

Sensor unit Setting	Usage comments
Sunlight	For general outdoor use in direct sunlight.
Cloudy	For general outdoor use in cloudy weather.
Shadow	For general outdoor use in shady locations out of direct sunlight.
Flash	For general indoor use when using a typical flash system.
Fluorescent	For use when using fluorescent lighting.
Tungsten	For use when shooting indoors under standard tungsten lamps.

MAIN MENU > White Bal

The H2D provides a wide selection of options for establishing your white balance, including a general-use automatic function that tries to respond in a way similar to what your eyes do. The white balance setting is stored parametrically with each shot and affects the colours shown in the preview screen. However, the original pixel values are not permanently changed, so you can adjust the white balance at any time (using, for example, FlexColor) and the result will be the same as though you had set the white balance before shooting. See also Setting the White Balance .

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Using the preset white balance functions

To select a preset white balance:

1. *Select the* **MAIN MENU** > **White Bal** *entry. The current setting is displayed here. (See also Navigating the Menu System for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the available white balance settings until the setting you want is shown.*
3. *Either move on to another setting by using the navigator button or press the menu button to exit the menu system and keep your setting.*

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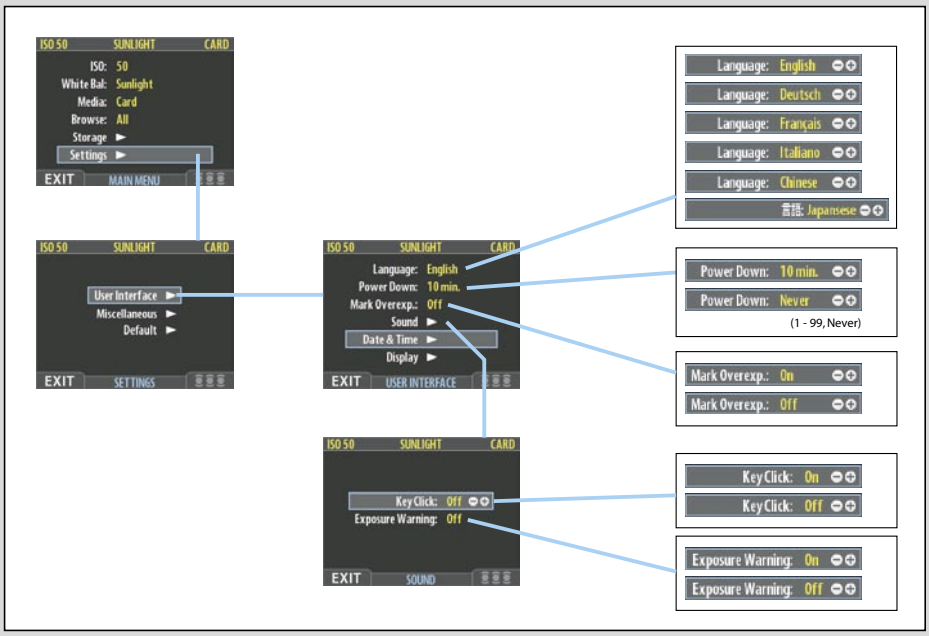

User interface settings

MAIN MENU > SETTINGS > User Interface

The User Interface settings control the way the sensor unit interacts with you, the photographer. It also presents some battery-saving options and includes date and time settings.

Entries of the USER INTERFACE Menu

To get to the user interface settings, open **MAIN MENU > SETTINGS > USER INTERFACE** menu. The user interface menu includes both entries and sub-menus. The following entries are available here:

- **Sound**:

  The sensor unit uses audio feedback to help let you know if each new image is exposed correctly. This is part of the instant approval architecture, which is described in **Using Instant Approval Architecture** . This menu entry enables you to turn the sound on or off.

- **Language**:

  The menu system can be displayed in any of several languages, including English, French and German. This menu entry enables you to select your preferred language for the menus.

- **Power Down**:

  To help preserve the charge of your camera battery, you can set the camera to power down after a specified period of inactivity. The effect is exactly the same as though you had pressed the off button on the camera. Once it has powered down, you must turn the sensor unit on before you can take more pictures. Set this to Never to disable this feature (this is the default setting). Set to a value between 3 and 99 minutes to establish a time-out.

Note that you can also set a display time-out, which darkens the display to help save battery power, but leaves the camera turned on so it will respond instantly to the shutter release and other buttons; see ***Making Display Settings*** *for details.*

- **Mark Overexp.**:

  This feature helps draw your attention to areas of your images that are overexposed. When this feature is enabled, the single-image preview display will highlight each overexposed pixel by flashing it white and black. Set this entry to Yes to enable the feature; set to No to disable it. See also **Overexposure Indicator** .

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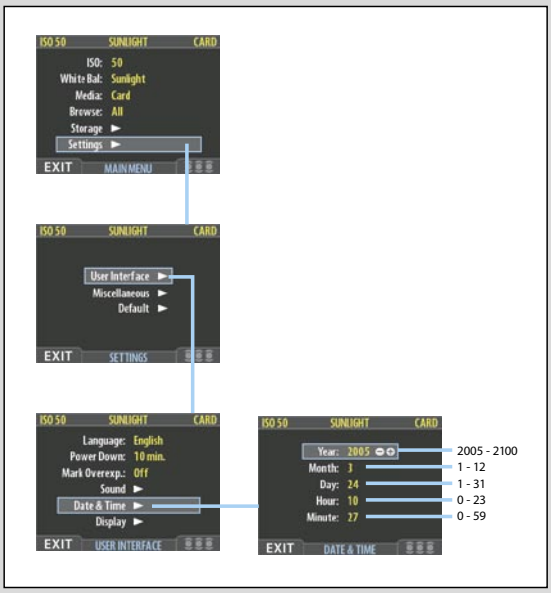
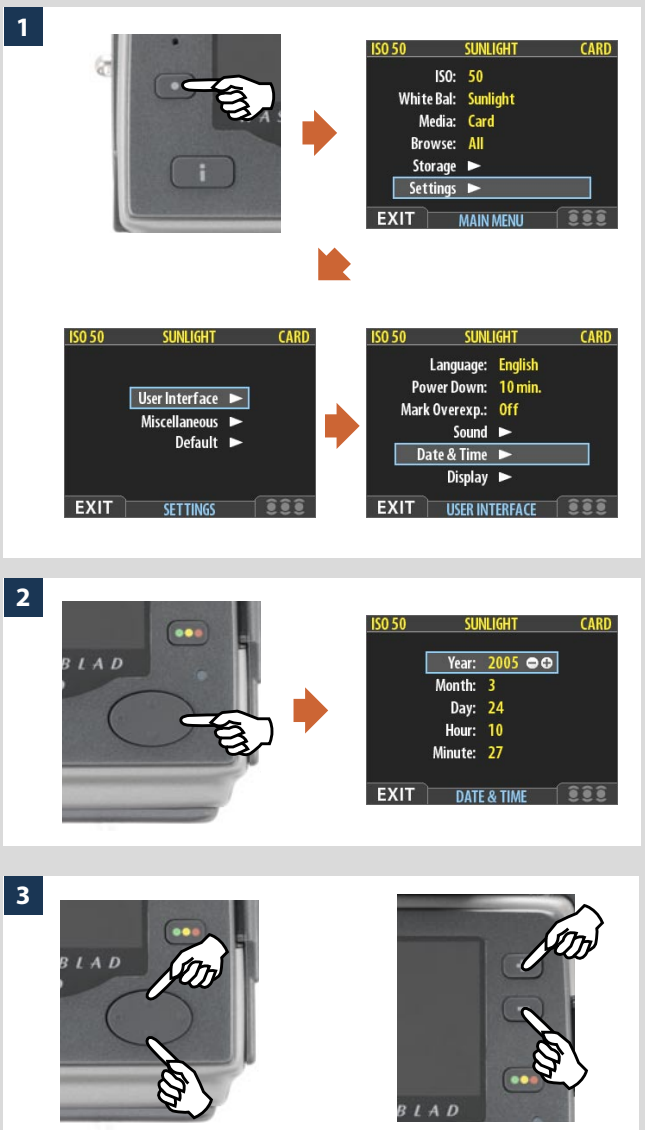


Navigating the date and time settings



Setting the Date & Time

The sensor unit has an internal clock that keeps track of the date and time. These are used to mark each shot with the date and time at which it was taken. They are also used to label batches with the date on which each batch was created.

Note that the date and time are synchronized to your computer whenever you connect it to your sensor unit. You may therefore never need to set the date and time manually as described in this section.

To set the date and time:

1. *Select* **MAIN MENU > SETTINGS > USER INTERFACE > Date & Time**. *(See also* ***Navigating the Menu System*** *for details about how to find this setting.)*

2. *Press ▷ to open the* **DATE & TIME** *menu.*

3. *The date & time menu includes entries for Year, Month, Day, Hour and Minute. Use △ and ▽ to select one of these, then use the (+) and (-) buttons to set the value of each entry.*

4. *When you are done setting the date and time, press the menu (***EXIT***) button to exit.*

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Navigating the display settings

Making Display settings

The Display settings control the brightness and contrast of the display. They also enable you to set a time-out for the display, which works somewhat like a screen saver and can help you save battery power.

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To set the display options, open the **MAIN MENU > SETTINGS > USER INTERFACE > DISPLAY** menu. As with all other menus, use the navigator button to select an entry and then use the (+) and (-) buttons to select settings for that entry. (See also **Navigating the Menu System** for details about how to find this setting.)

The following settings are available:

- **Timeout**:

  This sets a time-out for the display, which can help you to save battery power. When the time-out is reached, the display will be turned off, but the camera will still be turned on, so it will immediately respond to a press of the shutter release or any of the other buttons on the sensor unit panel. Set to Off to disable the screen time-out (this is the default). You can also set this to any full-minute value between 1 and 20 minutes.

Note that you can also set a power-down time-out, which turns off the entire camera; see Entries of the USER INTERFACE Menu for details.

- **Contrast**

  This sets the level of contrast shown on the screen. Usually, you should leave this set to the default level of 5; however in some viewing environments and/or with some types of images you may wish to increase or decrease this value. A value of 10 provides maximum contrast; a value of 0 provides no contrast (a black screen). You can also help save battery power by using a low value here.

- **Brightness**

  This sets the brightness shown on the screen. Usually, you should leave this set to the default level of 5, however in some viewing environments and/or with some types of images you may wish to increase or decrease this value. A value of 10 provides maximum brightness; a value of 0 provides minimal brightness. You can also help save battery power by using a low value here.

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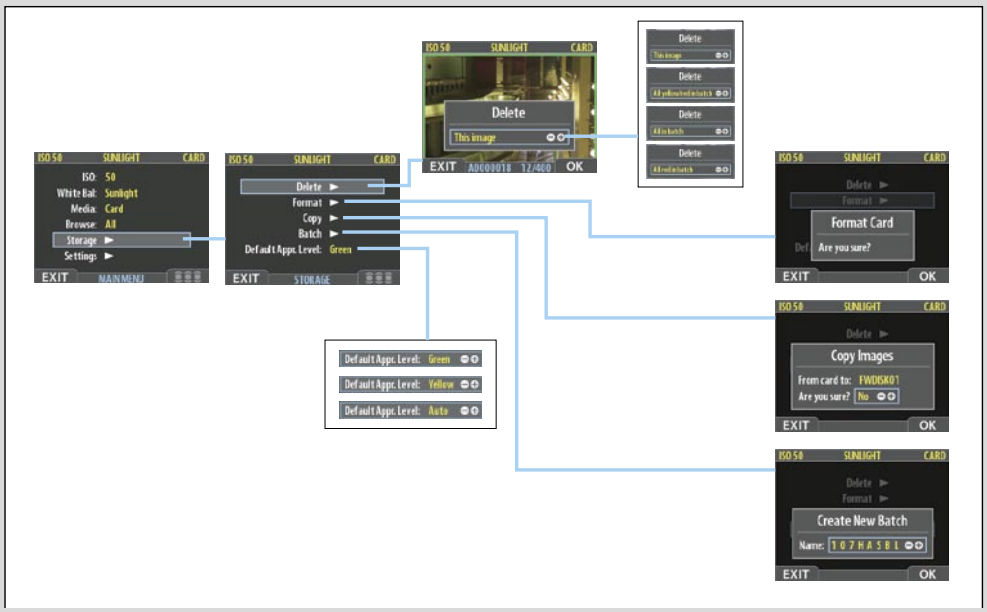
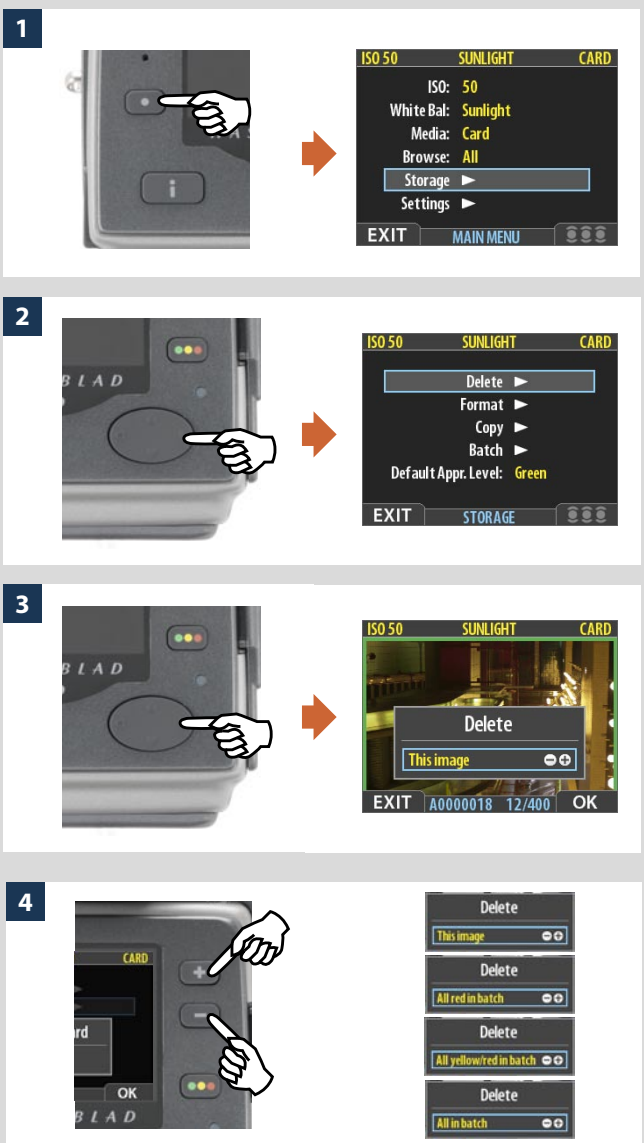


Navigating the storage settings



MAIN MENU > Storage

The Storage menu provides entries for working with storage media. Here, you can format media, copy images from the camera to a hard disk or computer and create new batches on available media. You can also set the initial approval status (green or yellow) assigned to new pictures.

The Delete command

The sensor unit is only able to read and write to media that have been initialized to use the FAT32 format, which is also readable by both Windows and Macintosh operating systems. However, new cards or disks sometimes arrive without any formatting, or you might want to convert media that are currently using a format that the camera cannot read.

To delete images:

1. *When the image you want to delete is viewed on screen, press the MENU button.*
2. *Select* **MAIN MENU > STORAGE > Delete**. *(See also* ***Navigating the Menu System*** *for details about how to find this setting.)*
3. *Press the ▷ to open the Delete dialog.*
4. *You now have the option to select what to delete. Use the (+) or (-) button to select between the following:*

- *This image: Deletes the selected image*
- *All red in batch: Deletes all red images in the current batch.*
- *All yellow/red in batch: Deletes all yellow and red images in the current batch.*
- *All in batch: Deletes all images in the current batch*

5. *Press OK.*
6. *You now return to the* **STORAGE** *menu. Either move on to another setting by using the navigator button or press the menu (***EXIT***) button to exit the menu system.*

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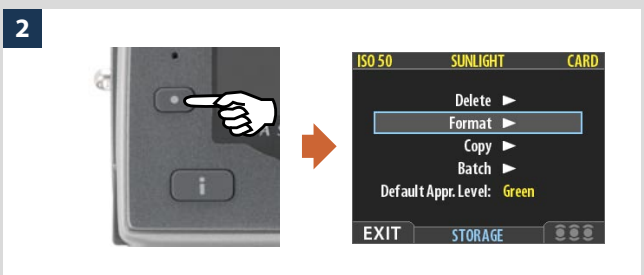

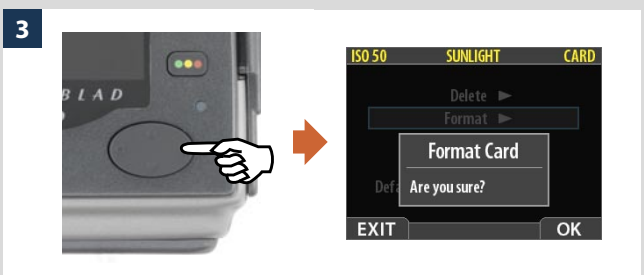

The Format command

The sensor unit is only able to read and write to media that have been initialized to use the FAT32 format, which is also readable by both Windows and Macintosh operating systems. However, new cards or disks sometimes arrive without any formatting, or you might want to convert media that are currently using a format that the camera cannot read.

Each time you get a new compact-flash card, we recommend that you format it using the sensor unit as described below, even if the sensor unit is already able to read it. This will enable the sensor unit to use the card more efficiently.

The sensor unit is capable of formatting any type of medium connected to it, including compact flash cards, FireWire disks and ImageBank-CF units. When you do this, you will erase all data contained on the target medium.

You can also use the format command for the purpose of deleting all images on a disk. This is sometimes faster than using the delete function, but it is not as flexible because all data from all batches will always be erased.

To format media:

1. *If you have more than one type of medium connected (e.g., a compact-flash card and ImageBank-CF), then start by selecting the medium you wish to format using the Storage entry of the main menu (see also* ***Selecting the Current Storage Medium****).*
2. *Select* **MAIN MENU > STORAGE > Format**. *(See also* ***Navigating the Menu System*** *for details about how to find this setting.)*
3. *Press the ▷ to open the Format Card dialog.*
4. *You are now asked to confirm the operation.*

- *To confirm, press the (+) button to change the status to* **Yes** *and then press the approve button to execute the format and delete all data on the current medium.*
- *To cancel, press the menu button to exit; or press the (-) button to set the status to No and then press the approval button to cancel.*

5. *You now return to the* **STORAGE** *menu. Either move on to another setting by using the navigator button or press the menu (***EXIT***) button to exit the menu system.*

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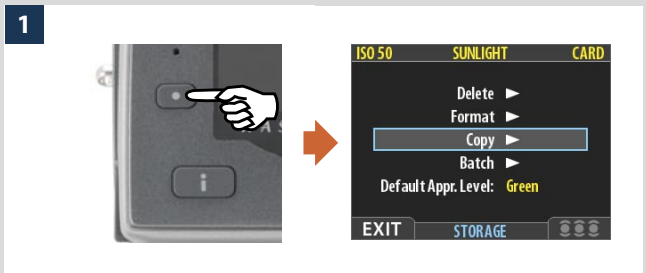

Copying images from a card

Usually, you will copy images from a card by connecting the camera to a computer and using FlexColor. However, you might also want to load images from a card to a portable FireWire hard disk or ImageBank-CF, allowing you to erase the card and keep shooting even when you do not have a computer with you.

You cannot copy images to a card.

After the copy, the destination disk will have a folder named CARDXXX, where XXX is a number that increments with each new copy operation (e.g., CARD001 for the first copy, CARD002 for the next, etc.). Previous copies are therefore never overwritten (provided you have fewer than 1000 folders of them). Within each CARD folder is a sub-folder for each batch. You cannot use the sensor unit to browse images copied in this way; you must connect the disk to a computer to browse the copied folders. This operation does not delete the copied images from the card—you must do this manually if you want to free card space after the copy.

To copy images from the compact-flash card to external media.

1. *Use a FireWire cable to connect the external media to your sensor unit (see also **Shooting**).*

   Select **MAIN MENU > SETTINGS > STORAGE > Copy**. *(See also **Navigating the Menu System** for details about how to find this setting.)*

3. *Press ▷ to open the Copy Images dialog.*
4. *If you have only one disk attached, then skip this step.*

   If you have more than one disk attached, then press △ to select the From card to entry. Then use the (+) and (-) buttons to select the name of the medium you want to copy to. Finally, press ▽ to go back to the Are you sure? entry.
5. *With the Are you sure? entry selected, you must now confirm the operation.*

- *To confirm, press the (+) button to change the status to Yes and then press the approve (**OK**) button to execute the copy.*
- *To cancel, press the menu (**EXIT**) button to exit; or press the (-) button to set the status to **No** and then press the approve (**OK**) button to cancel.*

  *If you chose to confirm, then sensor unit now tracks the progress of the copy operation, which can take a few minutes. You can stop the copy at any time by pressing and holding the menu (**STOP**) button.*

6. *You now return to the **STORAGE** menu. Either move on to another setting by using the navigator button or press the menu (**EXIT**) button to exit the menu system.*

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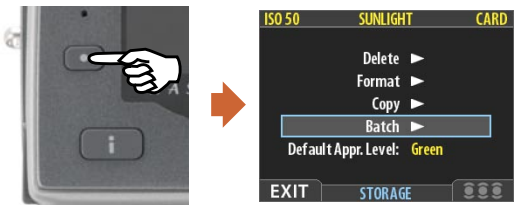
1



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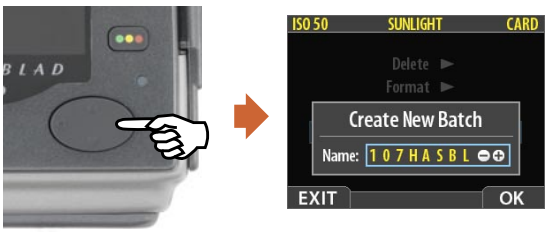

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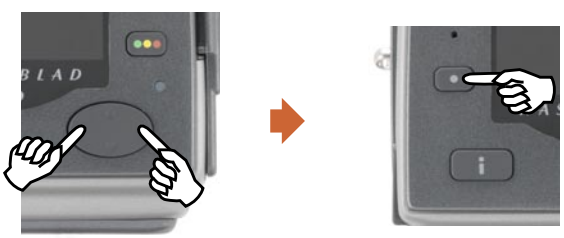

Creating batches

Batches help you to organize your work. They are very similar to folders on a computer hard disk. Use the **Batch** command of the **STORAGE** menu each time you want to create a new batch.

For more information about batches, please see **Working with Media and Batches** .

To create a new batch:

1. *Select* **MAIN MENU > STORAGE > BATCH**. *(See also* ***Navigating the Menu System*** *for details about how to find this setting.)*
2. *Press ▷ to open the* **Create New Batch** *dialog. The new batch name will always begin with a three-digit number, which automatically increments by one with each new batch. Following this is five letters, which you can assign yourself to help make the batch easier to identify. To set the letters,*

- *Use ◁ and ▷ to select one of the five letters.*
- *Use the (+) and (-) buttons to step the currently selected letter up or down the alphabet until you have found the letter you want.*
- *Continue working until you have set the name you want.*

4. *Press the approve (***OK***) button to save the new batch with the name you selected.*
5. *You now return to the* **STORAGE BATCH** *menu. Either move on to another setting by using the navigator button or press the menu (***EXIT***) button to exit the menu system.*

Setting the default approval status

The Instant Approval Architecture system helps you to evaluate and mark each image based on how well it has come out. By default, the system assigns an initial approval status for each new shot based on an analysis of the distribution of exposure levels. In the factory configuration, the status of each new shot is assigned as follows:

- ***Green (good):***

  The new shot seems to have been exposed correctly.
- ***Yellow (warning):***

  The new shot seems to have been over- or under-exposed.

However, you might choose instead to override this system and have all new shots assigned either as green or yellow, regardless of the exposure analysis results. A typical strategy could be to assign all shots to yellow and then review all of the shots later and promote only the best ones to green status. At the same time you might demote the most doubtful shots to red status.

See also **Using Instant Approval Architecture** for complete details about working with the approval system.

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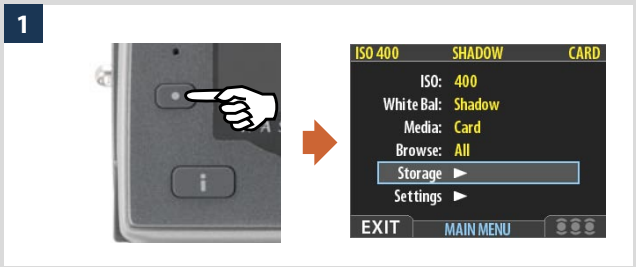

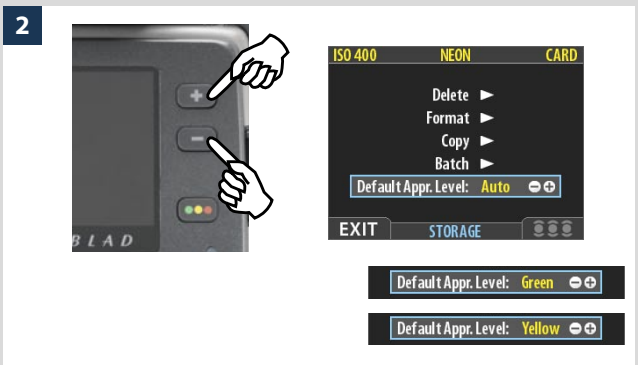

To change the default status assigned to each new image:

1. *Select the* **MAIN MENU > STORAGE > Default Appr. level** *entry. The current setting is shown here. (See also Navigating the Menu System for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the available settings until the default status you wish to use (auto, green or yellow) is shown.*
3. *Either move on to another setting by using the navigator button or press the menu (***EXIT***) button to exit the menu system and keep your setting.*

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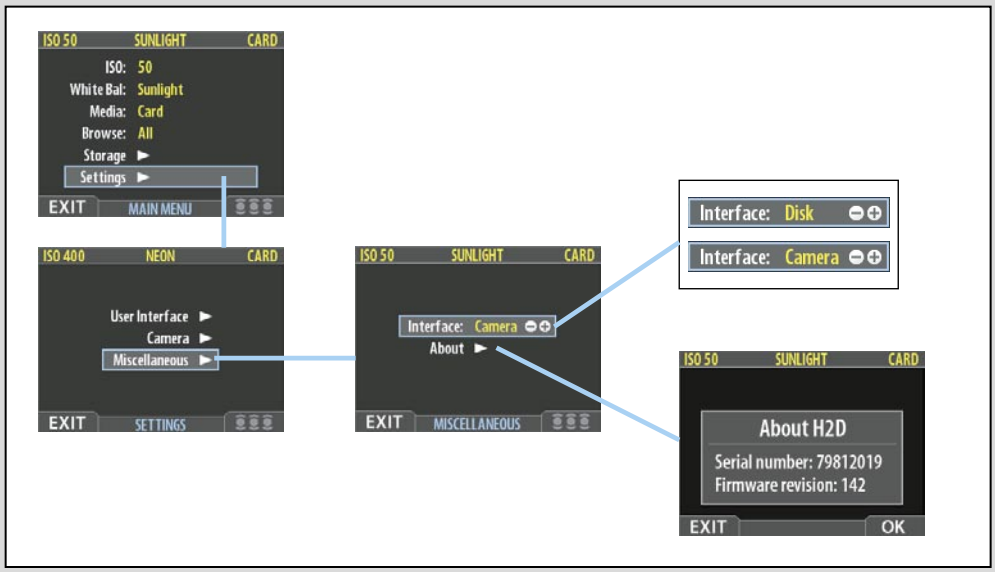

Navigating the display settings

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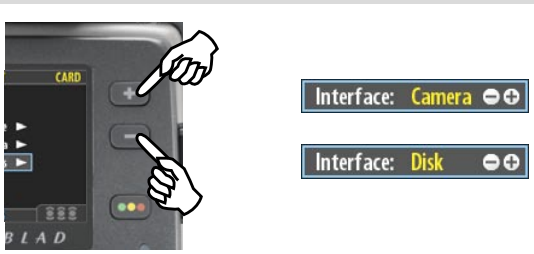

3

MAIN MENU > SETTINGS > Miscellaneous

The **MISCELLANEOUS** menu contains a few settings that did not fit under any of the other menus.

Selecting an interface

The interface setting controls the way the camera will appear to you computer when you connect it. You have the following choices:

- **Camera**:

  The camera will present itself to your computer as a camera. Depending on the way you have configured your computer, this may mean that when you connect the camera, your computer will automatically launch FlexColor, which may then begin importing images and converting them to 3f format.

- **Disk**:

  The camera will present itself to your computer as a mass storage device. This means that it will look like a hard disk, which you can navigate to, open and read using the standard tools for your operating system (e.g., the Finder in Mac OS or the File Explorer in Windows).

To set the interface presented by the sensor unit to your operating system:

1. *Select the* **MAIN MENU > SETTINGS > MISCELLANEOUS > Interface** *entry. The current setting is shown here. (See also* ***Navigating the Menu System*** *for details about how to find this setting.)*
2. *Use the (+) and (-) buttons to step through the available settings until the interface you wish to use (camera or disk) is shown.*
3. *Either move on to another setting by using the navigator button or press the menu (***EXIT***) button to exit the menu system and keep your setting.*

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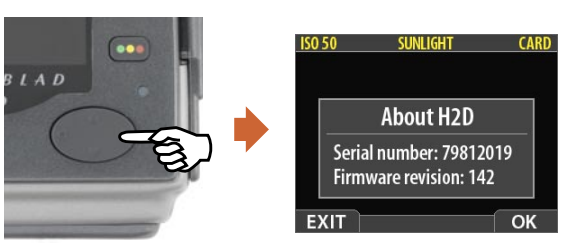

3

The About box

Occasionally, Hasselblad may release updates to the internal software of the sensor unit (this is called "firmware"). These updates may fix small errors and/or add new features. You will probably receive additional assistance from Hasselblad technical support if and when a new update is available. In this case, it may be important to know the serial number and current firmware revision of your sensor unit. To find this out:

1. *Select* **MAIN MENU > SETTINGS > MISCELLANEOUS > About**. *(See also* ***Navigating the Menu System*** *or details about how to find this setting.)*
2. *Press ▷ to open the* ***About*** *dialog, which shows the serial number and firmware version.*
3. *When you are done reading the information, press the menu (***EXIT***) button to return to the* **MISCELLANEOUS** *menu. Either move on to another setting by using the navigator button or press the menu (***EXIT***) button again to exit the menu system.*

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Menu Shortcuts

To help you work faster, the sensor unit provides shortcuts to some of the most commonly used menu commands that do not otherwise have a dedicated button on the front panel. These are accessible by pressing and holding one of the front-panel buttons for a second or so. These are mentioned where appropriate elsewhere in this manual, but we summarize them here for your convenience.

The following shortcuts are available:

• **To set the browse filter**	*press and hold △ until your preferred filter is indicated. See also Using Instant Approval Architecture .*
• **To delete a single image**	*select the target image and then press and hold the approve button until the confirm-delete dialog opens. To delete multiple images, use the menu system as usual. See also MAIN MENU > Delete .*
• **To toggle the overexposure indicator**	*press and hold ▽ until the display begins to flash (or stops flashing) its overexposed areas. See also Overexposure Indicator .*
• **To escape from zoom**	*press and hold the (-) button. This is especially useful when you have zoomed in several steps. See also Zooming In and Out .*

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Care and Maintenance

Handling and Storage

- ***Always replace the protective CCD/filter cover when the sensor unit is not mounted on your camera.***
- ***Do not touch the exposed CCD/filter with your fingers.***
- ***Keep all foreign objects out of the CCD opening.***
- ***Store your sensor unit away from moisture and excessive heat. Please see "Technical Specifications" for complete operational and storage requirements.***
- ***Protect your sensor unit from impact—do not drop it.***
- ***Keep the original shipping boxes for storage.***

Cleaning the CCD Infrared Filter

If you see dark or coloured spots or lines in your images, then you may need to clean the outer surface of sensor unit's infrared (IR) filter. In most cases, the careful use of compressed air will be adequate, but sometimes small particles will get stuck to the surface of the IR filter, requiring for a more thorough cleaning, involving either fluid or wipes. For a good safe cleaning, follow descriptions below.

WARNING: never attempt to remove the glass filter from the front of the CCD—you will probably ruin the CCD if you do so. If dust manages to get between the IR filter and CCD, please contact your Hasselblad dealer for assistance.

Basic Cleaning Procedure

1. *Discharge any static electricity that may have built up on your body by touching the sensor unit housing.*
2. *Remove the sensor unit from your camera body or remove the protective CCD/filter cover (see also "Setting Up" if you are not sure how to remove the sensor unit and/or cover).*
3. *Clean the outside surface of IR Filter by spraying it with clean compressed air. If this is not enough, then use one of the procedures outlined below.*
4. *If you still see spots on your shot after you have cleaned the outside of the infrared filter, then you may have dust on either on the back side of the IR filter or on the CCD itself. This can only be removed at the Hasselblad factory. Contact your Hasselblad dealer for assistance.*
5. *Replace the protective cover or reattach the sensor unit to the camera immediately after cleaning.*

Cleaning Using the HAMA Cleaning Fluid and Tissues

Note! Hasselblad recommends HAMA Optic Cleaning Fluid 5902.

1. *Carefully spray the fluid onto the IR filter at a distance of 10-15 cm (4-5 inches), so that the fluid is applied onto the filter as a thin, even haze. 1-2 sprays are enough. If you apply too little, the fluid will start to dry up before you start wiping the filter. As an alternative you can spray the fluid onto the tissue first, and then apply it to the filter as you wipe it.*
2. *Fold the tissue several times to match the width of the IR filter—you might use two or three tissues at a time if necessary (to give you a better grip). Be sure to fold the paper so that the coated glossy side faces outwards—do not use the other side, as it can do more harm than good!*
3. *Gently place the folded tissue onto the edge of the filter using two or three fingers. Be sure to wipe the entire surface evenly. Sweep the filter only once. Do not wipe the same area twice with the same tissue as you might reapply dirt removed in the first sweep.*

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4. *Finally check if the IR filter has been properly cleaned either by visual inspection or by mounting the sensor unit to the camera and making a shot. If further cleaning is needed, repeat cleaning procedure.*

Cleaning with an E-Wipe

E-wipes are individually packed wet tissues.

1. *Tear at the notch to break seal.*
2. *Remove e-wipe from its packaging and continue without delay.*
3. *Fold the tissue to match the width of the IR filter.*
4. *Apply firm pressure using two or three fingers at the edge of the wipe to ensure an even, firm contact with filter surface. Wipe the surface in one unbroken motion.*

Note! Do not use same side of the e-wipe twice as you will be likely to reapply any particles removed in the first pass.

5. *Finally check if the IR filter has been properly cleaned either by visual inspection or by mounting the sensor unit to the camera and making a shot. If further cleaning is needed, repeat cleaning procedure.*

Cleaning the housings

If the camera becomes dirty, clean it with a soft, clean cloth lightly moistened with water only. Do not use any other solvents and do not allow water to get.

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8

Light Metering & Exposure Control

- Three metering methods
- Five exposure methods
- Extremely accurate light metering

The light metering system is capable of selective sensitivity producing three reflective metering methods: Average, Centre weighted and Spot. All methods are measured in increments of 1/12 EV. Information transfer is rapid and automatic ensuring consistently correct exposure settings even in difficult and changeable lighting situations.

Light measurement is made through the lens (TTL) by the AE viewfinder and exposure is controlled manually or automatically by the control wheels and/or settings. The information is visible on both the grip LCD and the viewfinder LCD.

A great deal of control is available ranging from 100% manual through to sophisticated fully automatic by way of the various exposure methods: Manual, Aperture priority, Shutter priority, Program and Program variable.

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Light metering and exposure control

Two primary factors have to be considered when making exposure control choice, namely, metering method and exposure method:

Metering method *determines in which manner the light measurement is made and how much of the image is taken into account(Average, Centre Weighted and Spot).*

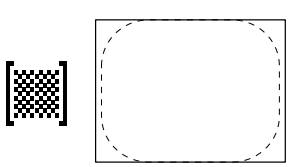
Exposure method *involves the parameters and deciding factors about how the light measurement is translated into aperture and shutter speeds. Here the choice is about the camera controls and their effect on the result or suitability for the subject. Included in this choice is the type of automation too (Manual for 100% user control, Aperture priority, Program, etc for automated control).*

Some methods and modes are much more suited to various situations and applications than others, while some depend to a greater degree on personal preference and ways of working. A discussion of the points to consider in this context is beyond the scope of this manual. If you are not sure about choice, please check in other general photographic literature for a fuller explanation. Also check our website occasionally – www.hasselblad.com – for articles and discussions concerning such matters.

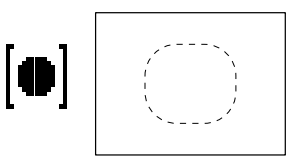
Remember that all exposure configurations are only applicable to the ISO setting in use!

Since the light measuring system is TTL, filter factors, lens extension / extension ring factors, etc, are automatically taken into account for average purposes. However, some combinations of methods and equipment can cause slight discrepancies for various reasons and therefore for critical work you should make alternative exposures to suit personal preference.

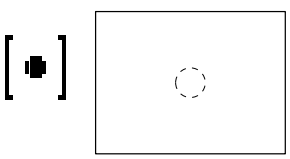
Exposures are displayed on the grip LCD to within 1, 1/2 and 1/3 EV tolerances (dependent on setting). This means that 'half-stops' are shown in a form that can differ from more traditional displays. For example, the position between f/ 8 and f/11 is displayed as f9.5 and likewise the position between 1/30s and 1/60s is displayed as 45. Therefore a display showing 'f 9.5 45' simply means 'f/9.5 at 1/45 second'. The appearance of an 's' after the shutter speed signifies whole seconds so, for example, '45s' on the display signifies an exposure time of 45 seconds, not 1/45.



Average
(45 x 37 mm) ≈ 70%



Centre weighted
(23 x 20 mm) ≈ 20%



Spot
(diameter 7.5mm) ≈ 2%

Metering method

There are three metering methods available. All three are reflective methods (measuring the light reflected off various selected parts of the subject according to method) and are through the lens (TTL). These have the following designations (with their respective LCD symbols):

- — *Average*
- — *Centre weighted*
- — *Spot*

Average: *Commonly used for 'average' light situations where there is no particular dominance of light or dark areas across the tonal range. Takes into account approximately 95% of the image seen in the viewfinder.*

Centre weighted: *Emphasises the central section of the focusing screen equivalent to approximately 25% of the image. This provides a balanced assessment and is a typical choice where the main subject is in the centre of the image.*

Spot: *The sensitive area is equivalent to approximately 2.5% of the image area (the central spot on the viewfinder screen). Any parts of the image outside of this area will not affect the exposure reading. This provides a very accurate measurement of specific tones.Typically used in the zone system and similar light measuring situations where maximum control is required. Also excellent for tonal comparison measurements. The spot mode can display 'zones' instead of EVs in the viewfinder LCD (see Camera Options).*

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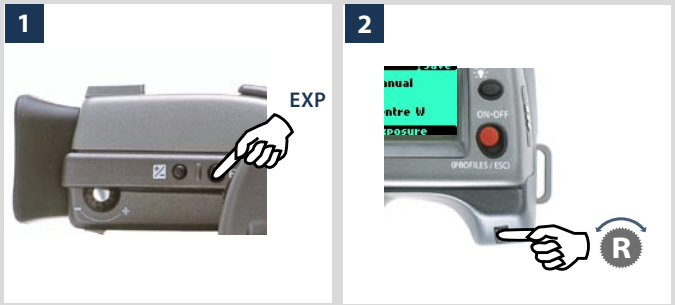
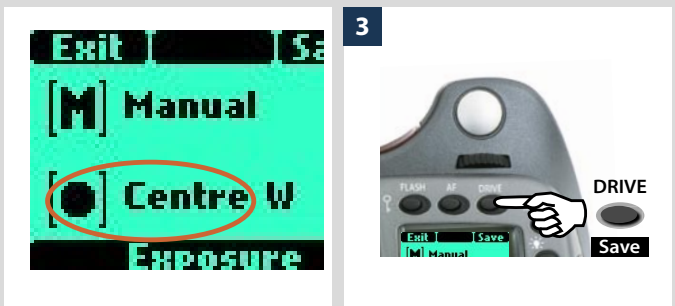




Selecting metering method

Proceed as follows with the camera in active mode:

1. *Press the* **EXP** *button on the viewfinder.*
2. *Turn the rear control wheel (in either direction 2a) to successively access the three choices:* **Average, Centre Weighted,** *and* **Spot** *2b.*
3. *Press* **Save** *(***DRIVE** *button) to retain the setting.*

Exposure method

Exposure can be controlled either manually or by using one of four automatic modes. These have the following designations on the grip LCD:

M – Manual

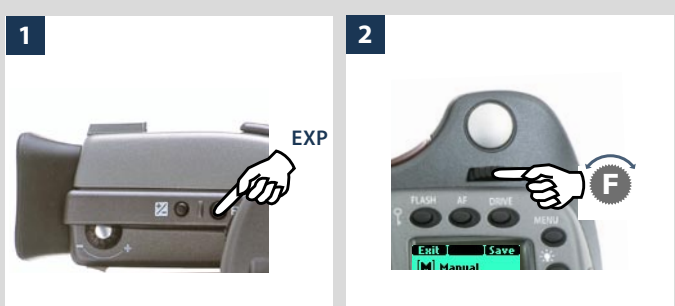
A – Aperture (priority)
S – Shutter (priority)
P – Program
Pv – Program variable

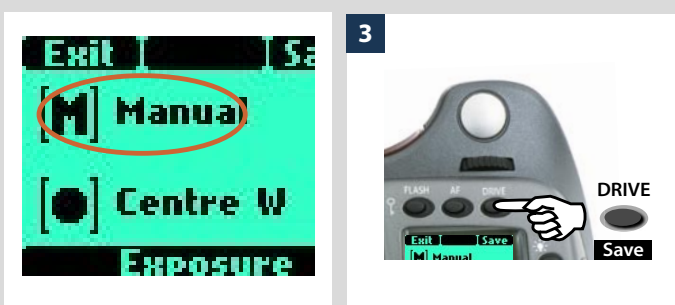
In each mode you can see both the aperture and the shutter speed information on the grip LCD and on the viewfinder LCD.

In manual mode, aperture is set by the front control wheel and the shutter speed by the rear control wheel.

In the automatic modes, the aperture and shutter speed settings are controlled by the camera, either partially or completely according to setting. Within this mode there are four choices.

(Please see the Appendix for P and Pv mode charts that describe the aperture and shutter speed setting combinations).





MANUAL EXPOSURE — M

Manual mode will provide total user control of the shutter and aperture settings.

To set the Manual mode, proceed as follows with the camera in active mode:

1) *Press the* **EXP** *button on the viewfinder.*
2) *Turn the front control wheel (either direction 2a) until you reach* **M** *(Manual) 2b.*
3) *Press* **Save** *(***DRIVE** *button) to retain the setting.*

In this mode the shutter speed and aperture settings are manually chosen by turning the front and rear control wheels.

The standard exposure setting is obtained when the pointer over the exposure scale is positioned above the central index (in the viewfinder LCD).

Any deviation from this standard setting is displayed by:

- ***the pointer appearing elsewhere than above the central index***

and

- ***by figures above the scale representing the amount of adjustment in EVs.***

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4

A '+ 0.3' above the scale in the display, as in illustration 4 for example, would indicate a '0.3 EV overexposure' setting. Conversely, a '-2' , for example, would indicate a '2EV underexposure' setting. Note that the appearance of a +/- symbol on the grip and viewfinder LCDs in manual mode means that a change has been made to the exposure compensation setting. See later section on 'Exposure compensation'.

The actual aperture settings and shutter speeds are indicated to the right of the exposure scale in the conventional manner. (Note: 'full-stops', 'half-stops' and 'third-stops' are also displayed, according to setting (see 'increment setting). For example, a setting between f/8 and f/11 will appear as f/9,5 if 'half-stop' is chosen).

AUTOMATIC EXPOSURE — A, S, P, Pv

Automatic exposure provides a choice of two ways of controlling shutter speed and aperture settings semi-automatically and two ways fully automatically:

Aperture priority: A - The aperture is manually chosen by you by turning the front control wheel, and the shutter speed is automatically chosen by the camera.

Shutter priority: S - The shutter speed is manually chosen by you by turning the front control wheel, and the aperture is automatically chosen by the camera.

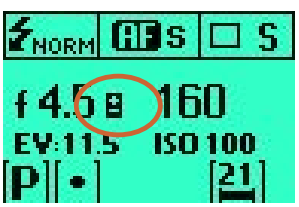
Programmed: P - In this mode, an aperture / shutter combination is chosen by the camera according to the EV measured (metering method remains as your choice), though only within pre-set appropriate limitations to suit various requirements and applications.

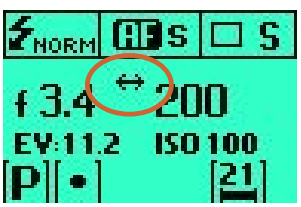
Programmed variable: Pv - This mode is very similar to Programmed, except with the additional parameters of lens focal length being automatically taken into account. For example, long shutter speeds will automatically be avoided with a long focal length lens.

1

2

3





To set one of the modes, proceed as follows with the camera in active mode:

1) *Press the* **EXP** *button on the viewfinder.*
2) *Turn the front control wheel (either direction) until you reach the required setting.*
3) *Press* **Save** *(***DRIVE** *button) to retain the setting.*

In Automatic mode the front control wheel selects alternative combinations while maintaining the same EV and the rear control wheel alters the amount of exposure compensation. The compensation appears as a +/- symbol on the grip LCD and viewfinder LCD. Other combinations that are outside the parameters offered by the Pv mode (but nevertheless still provide correct exposure) are signified by a double arrow symbol appearing between the aperture and speed settings on the grip LCD.

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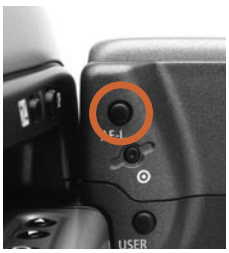
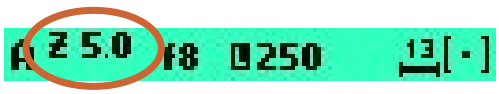


2

3

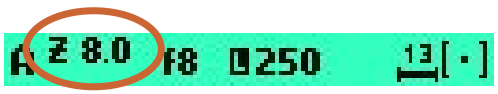
New metered area is 1.8 EV lower than the area metered when the AE-L button was pressed.

4



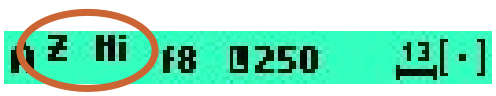
AE-L button pressed to call the metered area 'Zone 5'.

5



Metered area reads 'Zone 8'.

6



Metered area above 'Zone 10'.

AE- L button *1, 2*

This button has two main functions that can be incorporated in various working methods involving exposure locking. It also has an extra function for the flash meter capability (see AE-L section under Flash). The **AE-L** button can:

a) lock an EV setting in manual and automatic modes.

b) be used as a brightness range checking facility in standard terminology or Zone System terminology.

a) When the button is pressed (fig 1), the light metering facility is locked to the EV setting at that moment. An **L** (= locked) symbol appears between the shutter speed and the aperture indication (fig 2) on the grip LCD and viewfinder LCD to confirm the status. Press the **AE-L** button again to unlock (toggle function).

In the locked setting, the aperture and shutter speed become interlocked. In this way, a new aperture/shutter combination that still represents the same EV, can be rapidly chosen. For example, if you set the shutter at 1/125s and the aperture at f/8 and lock them together, you can access new EV-equivalent combinations of, for example, 1/30s a f/16 or 1/500s at f/4 just by moving the front control wheel.

In practice this means you could, for example, in auto mode, position the metering area (spot setting) over an area in the subject that you determine to be equivalent to a mid-grey and lock it with the **AE-L** button. You can then recompose the picture with the metering zone positioned over an area much brighter or darker while still retaining the original exposure setting and choose a new combination of aperture and shutter speed settings.

b) The **AE-L** button also allows the spot metering function to make tonal comparison readings and brightness range checks. When the **AE-L** button is pressed, the metered area is saved as a mid-grey. When the spot area is then placed over another part of the scene, the new area is then compared to the saved area and the difference can be read off the scale seen in the viewfinder. For example, in a landscape situation you could meter the foreground, lock the reading with the **AE-L** button (thereby locking that area to be reproduced as the equivalent to a mid-grey 18%), point the camera at some rocks to see by how much darker they are compared to the foreground by the EV difference read off the scale (illus 3).

If you have chosen **Spot** together with **Zone** display (see 'Custom options' for settings and 'Zone' in the Appendix for further information about the zone system.) as well as one of the automatic modes **A**, **S**, **P** or **Pv**, point the spot marking at an area that you decide should be a Zone 5 and click the **AE-L** button (illus 4). The meter will now display different parts of the subject as zone values (illus 5) in the viewfinder LCD, instead of EV deviations, as you move the spot marking over the subject. (Included are Lo and Hi (illus 6)to signify areas beyond the range of the sensor).

Alternatively you can choose to re-classify an area as another zone and then check the rest of the subject to see how other areas fall on the zone scale. Do this by following the above procedure and then turning the rear control wheel until you see the new desired zone value in the viewfinder LCD. You will also see the new exposure that will now produce that new zone. For example, you might have measured a rock at zone 5 but wish to make it darker. By moving the rear control wheel you could re-classify it as zone 4. You will then be able to see, for example, whether white clouds are now falling within the exposure range by their new Zone classification.

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Alternatively, you can also pre-set the initial zone reading in order to save time and effort where there is no freely available 'zone 5' subject for light measuring. For example, you might be on a sandy beach where you know that sand is normally classified as zone 6. You can pre-programme the zone placement by holding down the **AE-L** button while choosing the new zone value and turning the front control wheel until zone 6 appears. Pointing the camera at other parts of the scene will now display their zone values (in relation to the initial setting of sand at zone 6) to see whether they still lie within the sensitivity range and how they might appear in the result.

Exposure compensation

The exposure compensation facility, for both manual and automatic modes can be set from -5 to +5 EV, in 1/3 EV increments. This facility will adjust the exposures by the set amount until changed and the setting is visible above the scale in the viewfinder and as a ± symbol on the grip LCD.

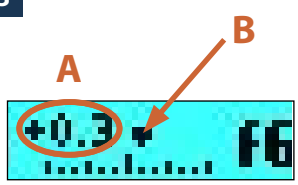
To make a fixed exposure compensation setting, proceed as follows with the camera in active mode:

1) *Press the +/- button on the viewfinder.*
2) *Turn either the front or rear control wheels to increase or decrease the amount of compensation in 1/3 EV steps.*
3) *The amount is displayed in the viewfinder as both an EV figure complete with a 'minus' or 'plus' prefix (A in illustration) , and as a marker above a 'minus' to 'plus' scale with a central index signifying zero compensation (B in illustration).*
4) *Press* **Save** *(***DRIVE** *button) to retain the setting.*
5) *A '±' symbol is then displayed between the aperture and shutter speed setting as confirmation of the setting.*

1

2

3



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5

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9 General Functions

- Manual and autofocus modes
- Two drive modes
- Quick adjust wheel
- Profiles

This section describes the basic and general functions used in most situations.

By understanding the capabilities of the H system you will be able to gain a great deal of control of how you work in the future. By taking advantage of the many features available, you might well find your normal practices changing for the better. As all features are user controllable, you tailor the way the camera works according to your preferences.

Features such as the Quick adjust wheel and Profiles, for example, do not have to be used of course, but you are advised to read about them and see if they might suit your way of working.

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Power

The camera can be set at two active power modes – **ON** *or* **Standby** *– as well as* **OFF**. *In active modes, battery consumption is least in* **Standby** *mode and most in* **ON** *mode. The camera enters* **Standby** *mode automatically after 10 seconds (default) to preserve battery consumption but this interval can be changed in Custom Options. Also, after 10 seconds, the display on the OLED on the sensor unit is dimmed and after 30 seconds the display is turned off completely. After 3 minutes the sensor unit enters the Standby mode. Settings can only be made when the camera is in the* **ON** *mode.*

ON

To activate the camera press the red **ON.OFF** button until you see the start-up H2D logo appear on the grip LCD. The logo is automatically followed by the main screen. The camera is now in **ON** mode.

After a set period of inactivity (programmable in Custom Options) the camera automatically enters Standby mode, signalled by the appearance of the H2D logo again.

Standby

In this mode the camera is in a mainly inactive 'standby' mode and is ready to be immediately reactivated to the **ON** mode by:

- ***pressing the shutter release button half way***
- ***pressing the* Stop down *button***
- ***clicking the* ON.OFF *button***
- ***pressing the* Mirror up *button***.

In this mode, signalled by the standby H2D logo appearing on the grip LCD, the demand on the batteries is very low. It is ideal for general use where intervals between shots exceed a few seconds.

Standby mode is automatically set from the **ON** mode after 10 seconds (default) of inactive use (programmable in Custom Options).

OFF

From the active screen, press (not click !) the red **ON.OFF** button for a half second. All buttons (except the **ON.OFF** button) remain ineffective, producing minimal demand on the batteries. This is the normal mode when transporting or storing the camera or where there might be a risk of inadvertently activating the camera. (However, remove the batteries if you are going to store the camera for a period of more than a few weeks).

In this mode neither the viewfinder LCD nor grip LCD information is available. The magazine LCD, however, will continue to display information as it is independently powered. **OFF** mode is automatically set after six hours of inactivity in **Standby** mode.

Manual focus

There is both a **Manual Focus** *mode setting and a* **Manual Override** *capability.* **Manual Focus** *is a specific setting that you actively make, whereas* **Manual Override** *is always available as a temporary override of an autofocus setting.*

In **Manual Focus** *mode, focusing is carried out by rotating the focusing ring in the conventional manner. The focus setting remains until changed as with a conventional non-autofocus lens. This means that pressing the shutter release button will not activate a focus setting change as it does in autofocus. To change back to autofocus, you must make a new setting (by pressing the* **AF** *button and choosing* **AF S** *or* **AF C**).

With **Manual Override**, *you can manually alter a focus setting that has been made in the autofocus mode, by rotating the lens barrel in the conventional manner and without having to change modes. As long as the shutter release button is kept at the half-press position, the new focus setting is maintained. By releasing the pressure on the shutter release button and pressing again, the autofocus function is immediately reactivated.*

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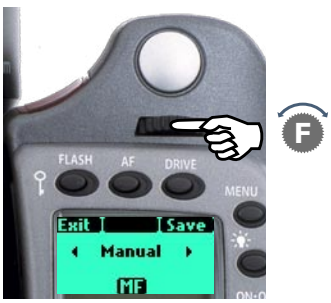
1

2



3

Manual focus mode

The ***Manual focus mode*** *is set by the front control wheel on the grip in the following manner:*

In camera active mode:

1) *Press the* ***AF*** *button on the grip.*
2) *Turn the front control wheel to: Manual*
3) *Press* ***Save*** *to store the setting.*

You can also use the shutter release button 'half-press' function to save a new setting and automatically return to the main screen.

Natural friction is inherent in the design to purposely reproduce the secure feel of a completely manual lens.

Please note that when focusing manually, the infinity and closest distance marks on the lens scale can appear to be positioned beyond the central index. This is only an apparent effect and does not change the focusing range of the lens.

Autofocus override in Manual mode

See Autofocus section for a description of how to use the advantages of a rapid autofocus check while remaining in Manual mode.

Autofocus

Autofocus mode can be either ***Single Shot*** *or* ***Continuous*** *and is activated by pressing the shutter release to the half-press position. Its operative range from EV1 - 19 at ISO100. The point of focus is determined by the area within the central rectangular zone on the focusing screen. When light levels are too low or the contrast of the subject is too low, auxiliary illumination (situated on the top of the grip) is automatically activated if desired. The operative distance is approximately six metres from the camera. Alternatively, a suitable attached flash unit that has a similar facility (a Metz 54/70, for example) can also be used instead. This feature can be altered in settings; see under Custom options/AF assist light.*

The autofocus range on the HC 4/120 Macro lens can be limited by a specific setting on the camera allowing for near range, far range or full range. This only appears on the grip LCD together with this particular lens.

Single Shot

At **Single Shot** setting (**AF S**), the shutter release will be blocked until the camera finds the optimum focus setting. This ensures that no exposures can be made that are not finely focused. However, this delay will normally be only a fraction of a second in good lighting conditions with a clear focusing pattern.

Note though that in this mode the lens will focus at a distance and will remain focused at that distance while pressure remains on the shutter release button. In this way, you can focus on a nearby object for example, temporarily positioned within the focusing zone on the viewing screen and then without releasing pressure on the shutter release button, recompose knowing that the focus remains on the object chosen even though it is now outside the focusing zone. Releasing the pressure on the shutter release button and pressing again half way would now change the focus setting to the distance of the object within the focusing zone.

See under 'Manual override in autofocus mode' for a useful way of working with manual and autofocus settings in a combined manner.

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Continuous

At Continuous setting (**AF C**), the shutter can be released rapidly before the lens is focused in order to capture a split-second shot (in **Single Shot**, an exposure cannot be made until the camera has had time to focus). However, the camera will continue to focus if a moving subject is within the focusing zone or if you recompose, even though the shutter release button is half pressed.

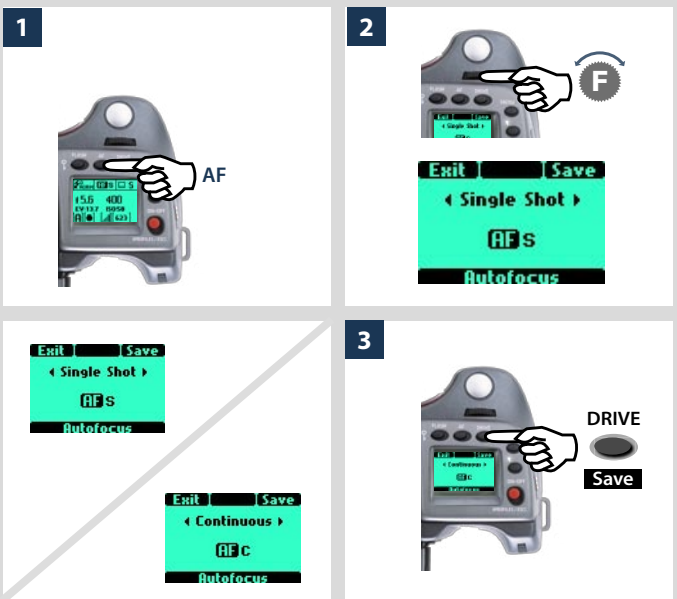
One method to exploit this feature when photographing in a rapidly changing situation such as photojournalism, for example, is to keep the shutter release button pressed down. In this way the lens focuses constantly (according to the focusing zone) and by momentarily releasing the pressure on the shutter release and then immediately pressing again, you minimize the amount of time needed for the lens to check focus, thus ensuring a split-second shot at optimum focus.

Autofocus mode

Autofocus is set via the control wheels in the following manner:

In camera active mode:

1) *Press the* **AF** *button on the grip.*
2) *Turn the front control wheel to:* **Single Shot** *or* **Continuous** *as required.*
3) *Press* **Save** *(***DRIVE** *button) to store the setting.*



Manual override in autofocus mode

Manual override is always possible in automatic focus mode without any need to make a new setting; just rotate the focusing ring in the conventional manner. As the lens barrel does not rotate in autofocus mode, you can hold the focusing ring for instant manual adjustments as you would with a conventional lens. However, to retain the new manual focus adjustments, you must maintain the pressure on the shutter release button. You can instantly return to the automatic focusing mode by releasing the pressure on the shutter release button first and then pressing the release button halfway again.

The instant manual override facility produces a convenient way of working. You can take advantage of autofocus while retaining an instantly adjustable manual focus check if preferred for pin-point accuracy without making any changes in the settings.

Another method for users who prefer more manual focus control while maintaining the benefits of the accuracy of autofocus is to set the camera to Manual focus and the User button to AF (Single) drive (see 'User button function list').

Focus is then adjusted manually with the focusing ring as normal but when the User button is pressed, the autofocus facility temporarily operates in AF S mode. After the new focus adjustment has been made automatically, the camera reverts immediately to manual focus control when the User button is released. Therefore, you can recompose the picture without having to maintain pressure on the release button in order to retain the newly automatically made focus setting.

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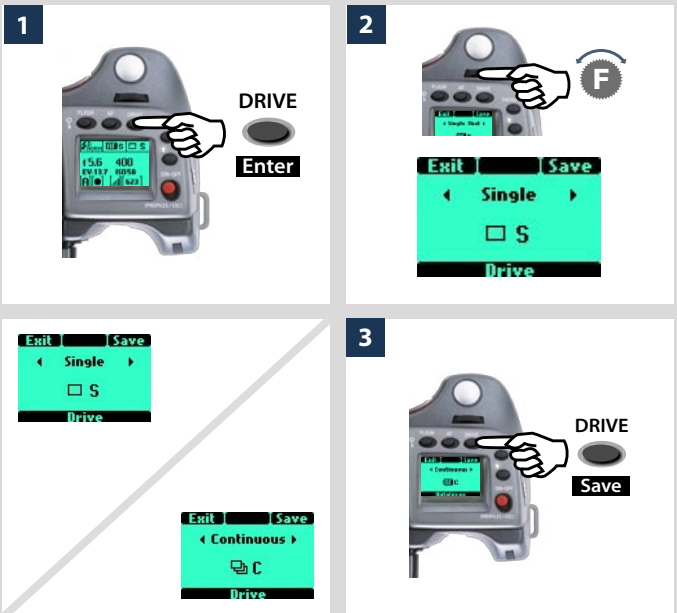

Drive

There are two drive modes, **Single** *and* **Continuous**, *accessed by pressing the* **DRIVE** *button on the grip.*

Single

In **Single** mode, an exposure is made when the shutter release button is pressed and the camera is made ready for the next exposure. To make the next exposure however, you must first release the shutter release button and then press again.

In camera active mode:

1) Press the **DRIVE** *button on the grip.*

2) Turn the front control wheel to: **Single**

3) Press **Save** *to store the setting.*

Continuous

In Continuous mode, the camera automatically makes exposures and makes ready for the next exposure in a continuous manner as long as you maintain pressure on the shutter release.

In camera active mode:

1) Press the **DRIVE** *button on the grip.*

2) Turn the front control wheel to: **Continuous**

3) Press **Save** *to store the setting.*

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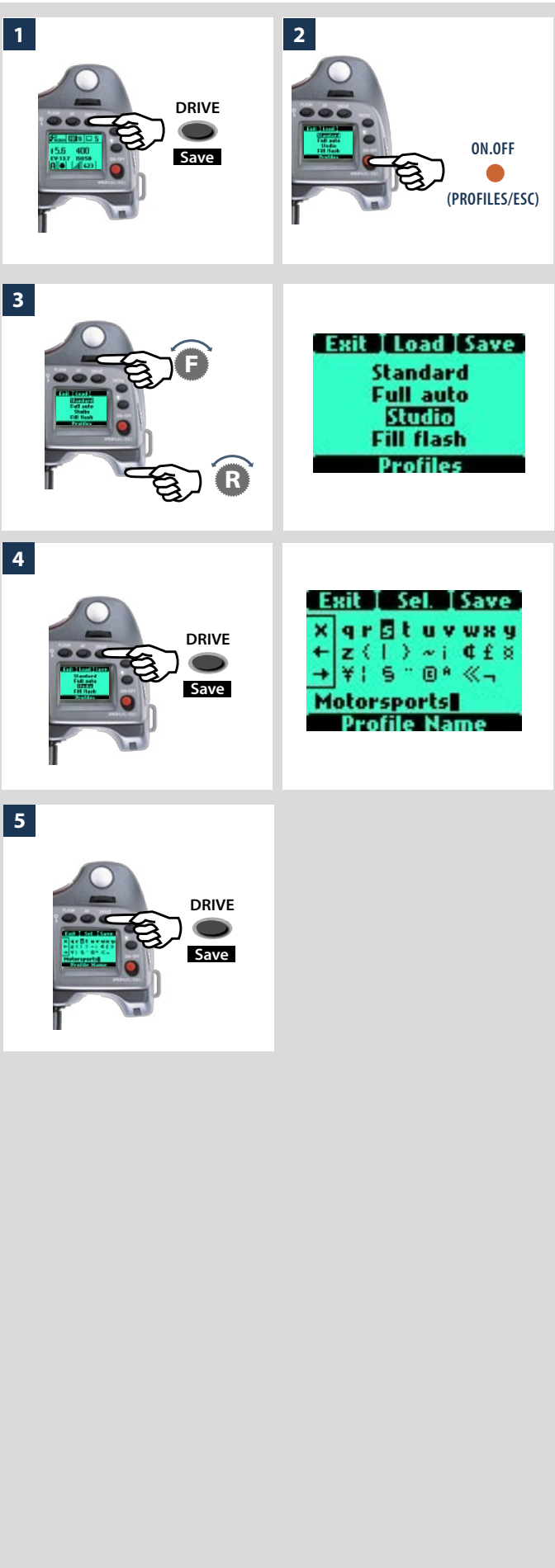

Profiles

The profiles feature allows rapid access to pre-determined combinations of settings that increase the speed and security of workflow. One example might be in a social situation where there might be a need for formal outdoor portraiture followed by informal indoor handheld flash-assisted wide-angle shots, both situations requiring very different settings in a stressful environment. By predetermining the relevant settings required beforehand for each situation, they can be saved collectively as a profile. By calling up the profile, you can then be assured that all the settings are correct at the press of one button.

For example, you might choose – autofocus single, bracketing, programmed exposure, etc – for outdoors. Once set, you would click on the red **PROFILES** *button, select a profile name and press* **SAVE**. *A new name can be entered for the new profile - 'Outdoors', for instance - and saved again. New settings are made for the indoor shots changing to flash, Pv setting, etc and the procedure repeated. By simply accessing 'Outdoors' or 'Indoors' in the profile list, all the relevant settings will be instantly and correctly implemented to match the situation.*

There are four profiles: **Standard, Full auto, Studio** *and* **Fill flash**. *All except Standard can be changed and renamed.*

The pre-set profiles feature the following:

Standard: *normal flash sync, autofocus (single), single drive, autoexposure (aperture priority), average metering, user button -None*

Full auto: *normal flash sync, autofocus (single), single drive, programmed exposure, centre weighted metering, user button -None*

Studio: *normal flash sync, manual focus, single drive, manual exposure, spot metering. user button - AF drive*

Fill flash: *normal flash sync (adjusted output -1.7EV), autofocus (single), single drive, autoexposure, average metering.*

All user profiles can be restored to default values again simply by removing the battery and holding down the **MENU** *and* **DRIVE** *buttons together and while keeping them depressed, replace the battery. There will be an audible signal that denotes the restoration.*

Making a profile

1) *Activate the camera and go through the various settings (for example, autofocus, aperture priority, fill flash exposure compensation, etc.) you require for the particular purpose and save them as you go.*
2) *When all the required settings have been made, click (not press!) the* **PROFILES** *button (***ON.OFF** *button) on the grip and the profile screen will appear.*
3) *Use either the front or rear control wheel to scroll through the list of profiles. Choose a profile name (except Standard). You can either save the new settings under this name or change the name you want to change.*
4) *Press* **Save (DRIVE** *button).*

   The Profile name screen is then displayed where you can rename the profile to what suits you (see section Imprint / Text 4.2.2 further on in this manual for procedure details).
5) *Press* **Save (DRIVE** *button) to keep the combination of settings with the new name.*

To use a profile from the main screen, press the **PROFILES** button to reach the profiles screen again. Scroll down the list to the profile

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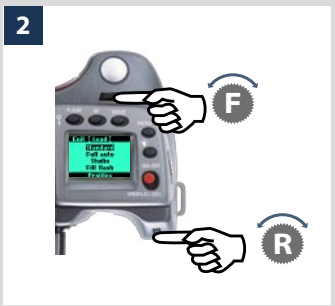
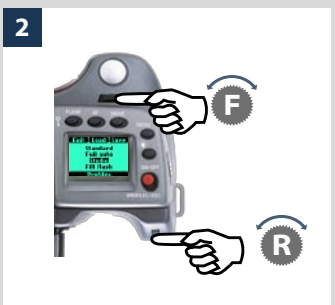
you want and then press the **Load** (**AF**) button. All the saved settings will then be automatically implemented.

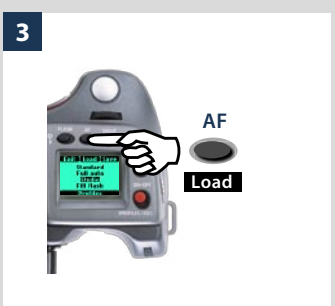
If you decided to change the settings but nevertheless keep the Profile name on the list, the new set of parameters will be retained under that name. That is to say, the settings will not be the same as listed here, despite the name. It might be safer practice to always change the profile name to avoid later confusion.



Using profiles

1) *From the main screen, click* **PROFILES** *(***ON.OFF** *button) on the grip and the profile screen will appear.*
2) *Use either the front or rear control wheel to scroll through the list and highlight the desired profile.*
3) *Press* **Load** *(***AF** *button). The camera is now set according to all the parameters stored according to the name.*





Changing a profile name

You can change a profile name (except 'Standard') at any time.

Proceed as follows:

1) *From the main screen, click* **PROFILES** *(***ON.OFF** *button) on the grip and the profile screen will appear.*
2) *Use either the front or rear control wheel to scroll through the list and highlight the desired profile.*
3) *Press* **Load** *(***AF** *button).*
4) *Click* **PROFILES** *(***ON.OFF** *button) again.*
5) *Press* **Save** **(DRIVE** *button)*
6) *The Profile name screen is then displayed where you can rename the profile to what suits you (see section Imprint / Text 4.2.2 further on in this manual for procedure details).*

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10 Advanced Features

- Programmable self timer
- Programmable bracketing
- Programmable interval setting
- 24 custom options
- Data and text imprinting

This section describes the features that might not need to be accessed everyday but should be exploited wisely to obtain the optimum from the system.

Some features are a little more special, bracketing for example. This is fairly normal practice for many photographers and the H system can provide a good deal of control and fine tuning of this particular feature.

24 custom options are provided to work for you in the background, ensuring security and also helping to bring down the barriers between you and capturing the image. Each one can be changed to suit your preferences so that the whole camera becomes a reflection of the way you like to work.

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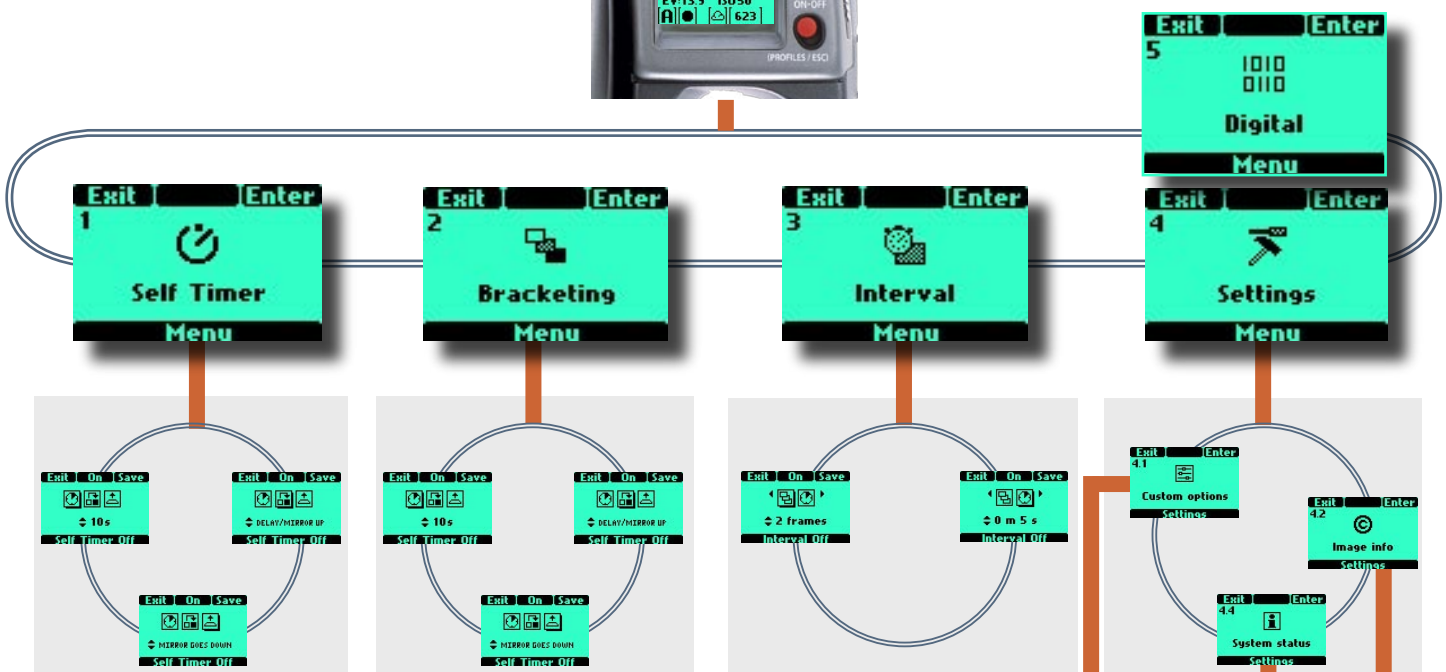
General overview of camera menu

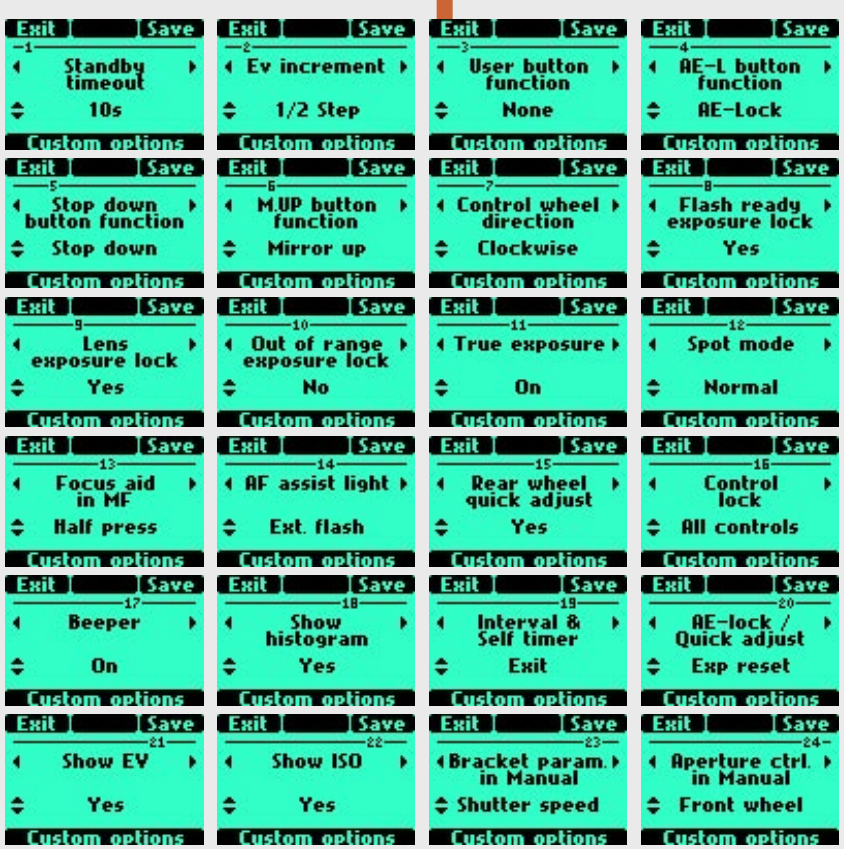


Self timer options

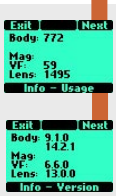
Bracketing options

Interval options

Settings options


Exit Save
1 Standby timeout 10s
2 Ev increment 1/2 Step
3 User button function None
4 AE-L button function AE-Lock
5 Stop down button function Stop down
6 M.UP button function Mirror up
7 Control wheel direction Clockwise
8 Flash ready exposure lock Yes
9 Lens exposure lock Yes
10 Out of range exposure lock No
11 True exposure On
12 Spot mode Normal
13 Focus aid in MF Half press
14 AF assist light Ext. flash
15 Rear wheel quick adjust Yes
16 Control lock All controls
17 Beeper On
18 Show histogram Yes
19 Interval & Self timer Exit
20 AE-lock / Quick adjust Exp reset
21 Show EV Yes
22 Show ISO Yes
23 Bracket param. in Manual Shutter speed
24 Aperture ctrl. in Manual Front wheel
Custom options

Custom Settings



System status

Image info

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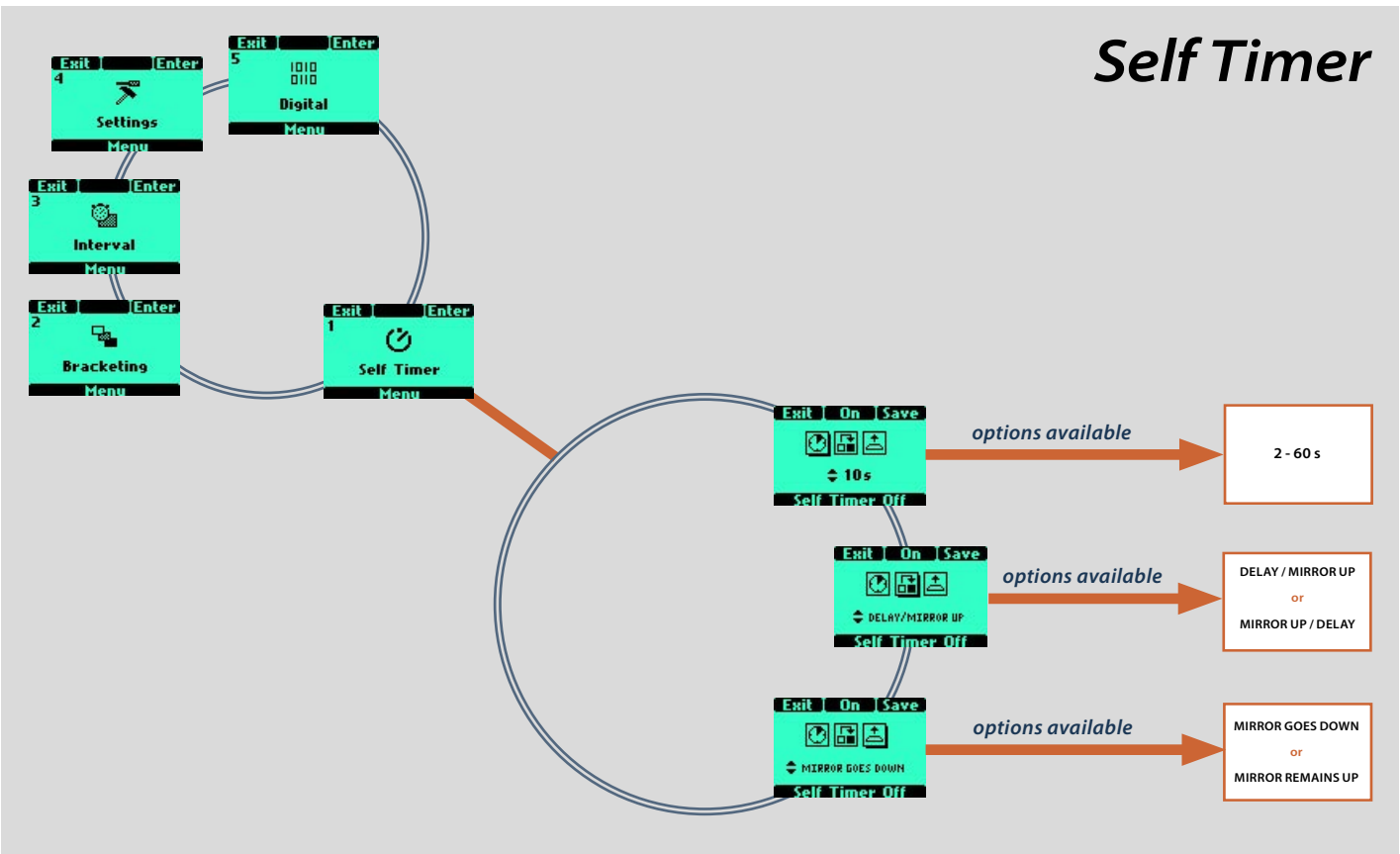
There are a number of more advanced features that while not necessarily used every day still remain immediately accessible through the menu system. They provide the integral finesses that make the H2D a powerful and sophisticated tool to satisfy a variety of professional demands.

There are four main functions:

1. Self timer
2. Bracketing
3. Interval timer
4. Settings
5. Digital (described in a later revision of this manual)

An important point to remember is that certain options are only available when the relevant screen has been accessed. For example, in Self Timer the choice of 'delay/mirror up' or 'mirror up/ delay' is only available (by turning the rear control wheel - lower row on display) when the relevant function has been chosen (by turning the front control wheel - upper row on display)



1 Self timer

The self timer allows a delay in the activation of the shutter and a change in sequence of the mirror movement. Normally the mirror is raised before the shutter is tripped creating a pause between the two actions to minimize camera vibration. However, during this pause there will be no image in the viewfinder and no light metering available for any eventual exposure change. Therefore the Self timer function can be set to a sequence where the delay is followed by the mirror being raised instead. Normally the mirror will instantly return after an exposure but you can also choose a setting where the mirror remains raised. The Self Timer can be set to provide virtually vibration-free shutter release. It can be used instead of a remote release cable/cord/device when split-second timing is not critical. The camera's exposure settings (Manual or Auto) will be according to the light metering requirements just prior to the mirror being raised so choose your method

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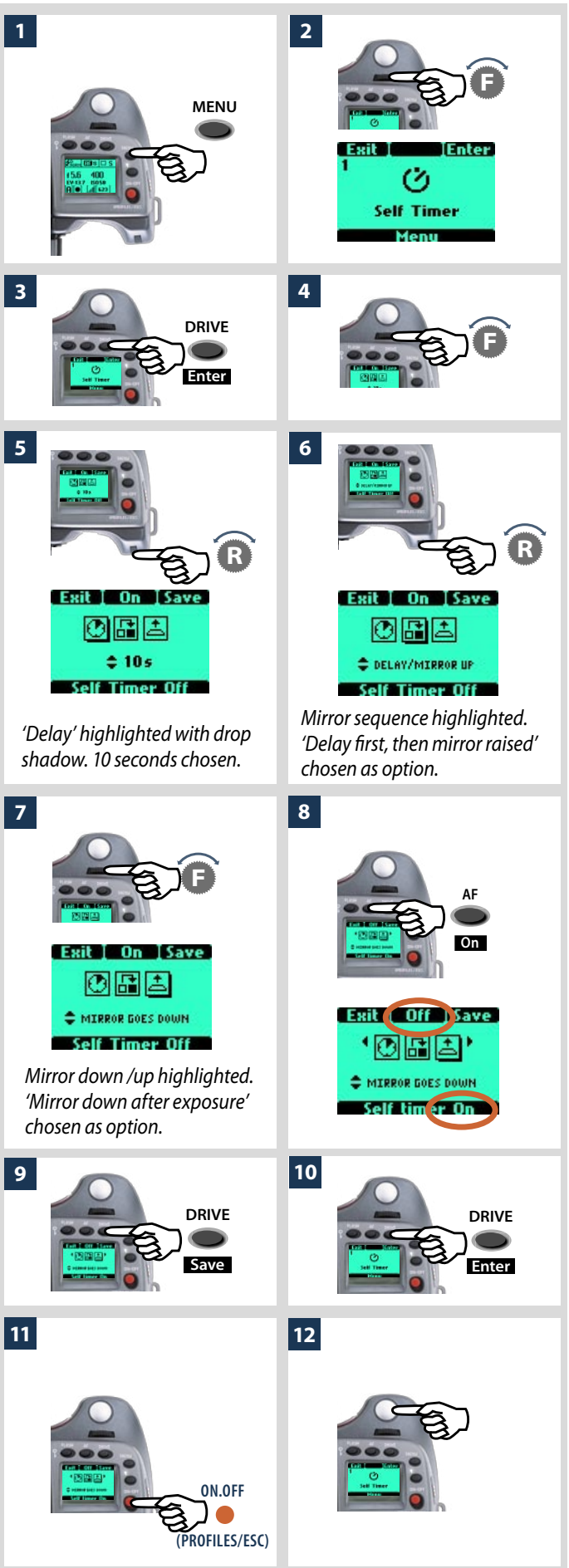

Self timer setting

The Self timer function is set in the following manner:

1) *Press the* **MENU** *button on the grip.*

2) *Turn the front control wheel until* **Self Timer** *appears.*

3) *Press* **ENTER** *(***DRIVE** *button) on the grip.*

4) *Turn the front control wheel to access the options, that are:*

Delay

Mirror sequence

Mirror Up / Mirror Goes Down

(A drop shadow will be displayed beneath the selected symbol, for example)

5) *When* **Delay** *is highlighted - - turn the rear control wheel to choose a delay range from 2 - 60s in 1s intervals.*

6) *Turn the front control wheel again to choose* **Delay / Mirror Up**, **Mirror Up/ Delay** *sequence - . When highlighted turn the rear control wheel to choose.*

Delay / Mirror Up *sequence =*
Delay for set amount of time — mirror raised — exposure made.

Mirror Up/ Delay *sequence =*
Mirror raised — delay for set amount of time — exposure made.

7) *Turn the front control wheel again for*

Mirror goes down / Mirror remains up *- - choice. Turn the rear control wheel to choose.*

Mirror goes down =
Mirror returns to its normal position and the camera is made ready for the next exposure.
Mirror raised =
Mirror remains in raised position. No image is visible in the viewfinder until M UP button pressed.

8) *Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Self timer on***'.*

9) *Press* **SAVE** *(***DRIVE** *button) to save the setting.*

10) *Press* **ENTER** *(***DRIVE** *button) again from the Self Timer screen to activate the function.*

11) *Click* **On** *(***AF** *button).*

12) *Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.*

Check the lower text-row on the screen for ON or OFF status.

You can halt the sequence by clicking the ON / OFF (ESC) button.

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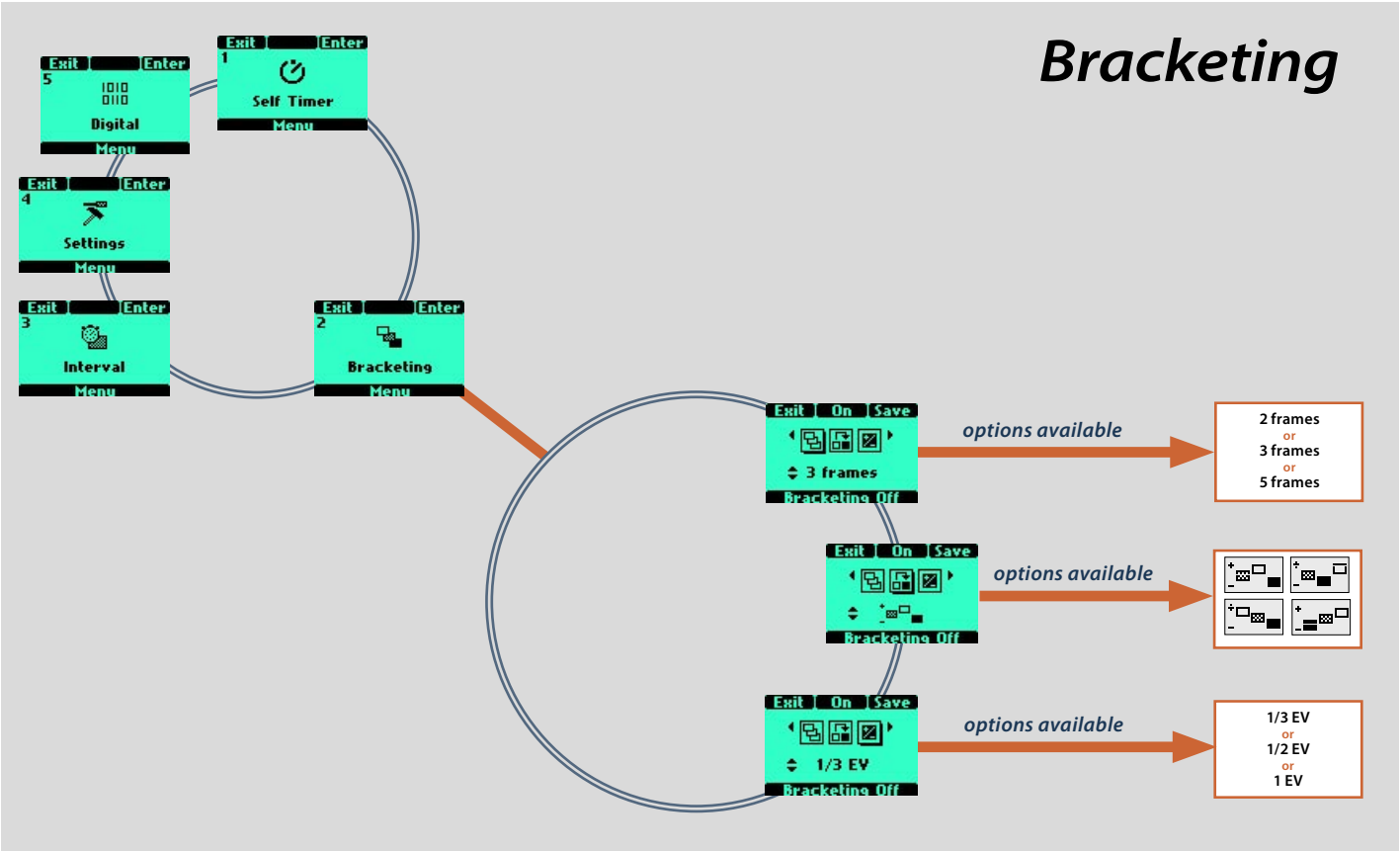

2 Bracketing

The bracketing facility provides an automatic series of exposures; one at the standard exposure setting (Manual or Auto) and the others with pre-determined deviations in EV from the standard exposure. This is particularly useful for images containing a very wide tonal range, for example.

Firstly you make an assessment concerning the number of extra frames required, the order in which they should be taken, and by how much EV deviations there should be and the setting made accordingly. The first metered exposure (Manual or Auto) is the EV that determines the calculations for the bracketing sequence.

Note the difference in operation between **Single** and **Continuous** drive settings:

- In **Single** you must press the shutter release button separately for every separate exposure until the sequence is finished.
- In **Continuous** you can either maintain the pressure on the button to take all frames without stopping or you can release the pressure on the button and press again to continue to the end of the sequence without losing any frames within the set sequence.

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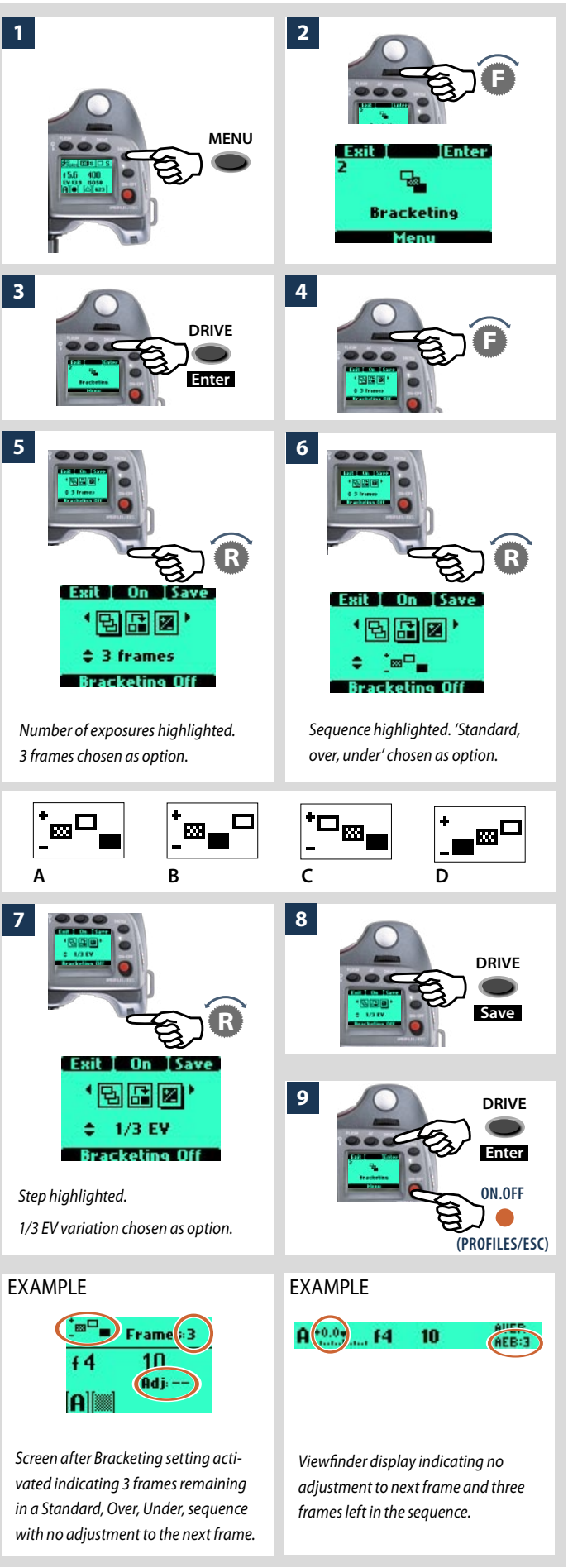

Bracketing setting

The Bracketing function is set in the following manner:

1) *Press the* **MENU** *button.*
2) *Turn the front control wheel until* **Bracketing** *appears*
3) *Press* **Enter** *(***DRIVE***) button on the grip*
4) *Turn the front control wheel to access the options, that are:*

Number of Exposures *(the number of exposures required in the sequence)*

Sequence *(the sequential order of the over- or under- exposures)*

Step *(the amount of EV variation from the standard exposure setting)*

(A drop shadow will be displayed beneath the selected symbol, for example)

5) *In turn the rear wheel to choose the number of frames required:*

   2, 3, or 5.

6) *In turn the rear wheel to choose one of four sequences:*

   A: Standard, Over, Under

   B: Standard, Under, Over

   C: Over, Standard, Under

   D: Under, Standard, Over

7) *In turn the rear wheel to choose the amount of EV variation required:*

   1, 1/2, 1/3 EV.

8) *Press* **SAVE** *(***DRIVE** *button) to save the setting.*
9) *Press* **ENTER** *(***DRIVE** *button) again from the Bracketing screen to activate the function. Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Bracketing on***'.*

   Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.

   To escape from this mode press **MENU***, then* **Enter** *(DRIVE button on the Bracketing screen, then* **Off** *(AF button).*

Check the lower text-row on the screen for ON or OFF status

The default setting is a shutter speed change in a bracketing sequence. However, if the camera is set in Manual mode, you can choose an aperture change instead (Custom Options - Bracket param. in Manual - 25).

See note at the beginning of this section regarding the difference between Single and Continuous drive settings. In both cases, the bracketing function is automatically reset for a new sequence.

A bracketing sequence can be stopped mid-sequence by pressing the ESC (ON.OFF) button.

As an example, a 5 frame sequence with an EV 1 variation setting at 'Standard, Over, Under' would produce: Standard (O EV variation), +1EV, -1EV, +2EV, -2EV.

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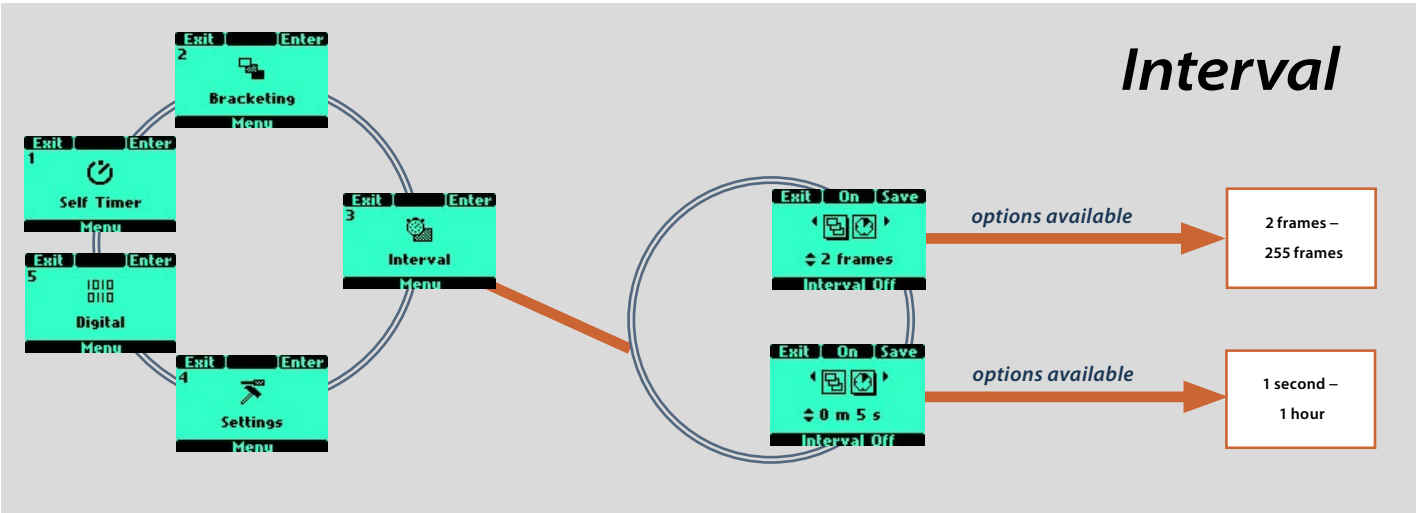

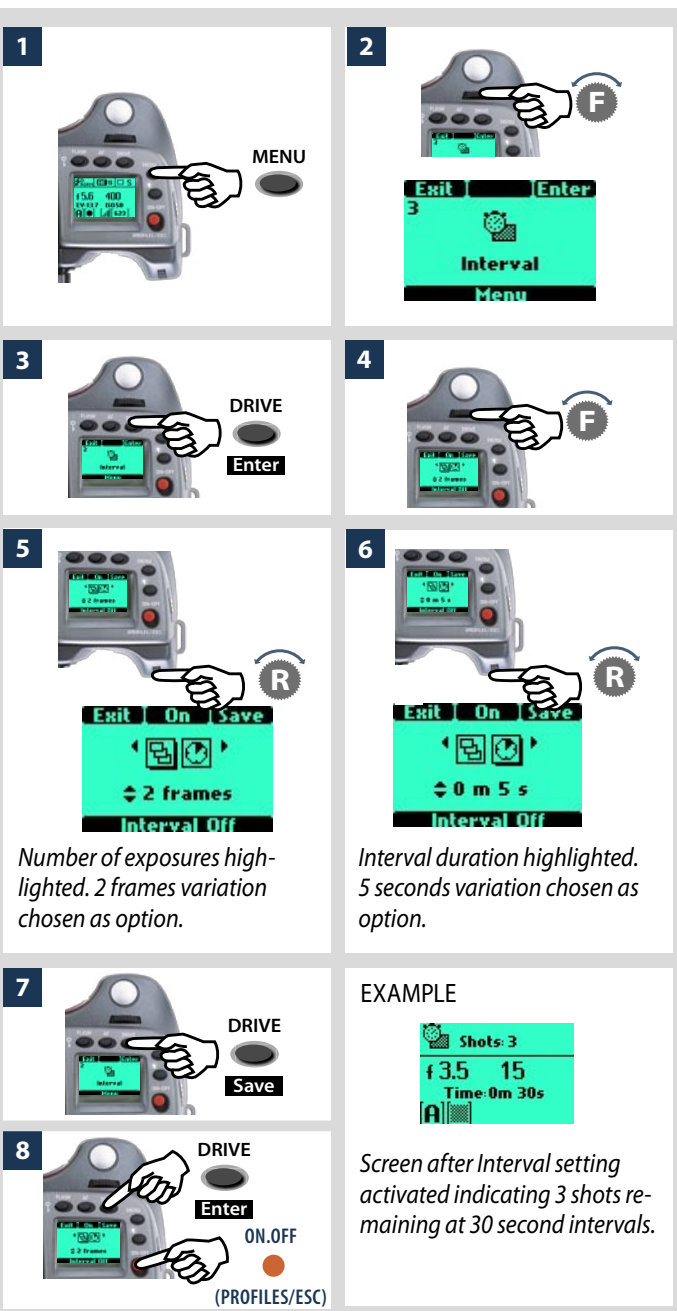

Number of exposures highlighted. 2 frames variation chosen as option.

Interval duration highlighted. 5 seconds variation chosen as option.

EXAMPLE

Screen after Interval setting activated indicating 3 shots remaining at 30 second intervals.

3 Interval

By using the interval setting, you can allow the camera to take a series of exposures automatically over a set period. This is often required for time and motion studies, security surveillance, nature study, etc. The exposure and focus settings (Manual or Auto) will be according to the camera settings at the time of exposure.

Interval setting

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Interval** *appears.*
3) *Press the* **DRIVE** *(***Enter***) button on the grip.*
4) *Turn the front control wheel to access the options, that are:*

Number of exposures *(the number of exposures required)*

Interval duration *(the time interval between the exposures)*

(The chosen symbol is indicated by a drop shadow)

5) *In Number of exposures, turn the rear wheel to choose the number of exposures required:*

   2 – 255

6) *In Interval duration, turn the rear wheel to choose:*

   1 second – 1 hour

7) *Press* **SAVE** *(***DRIVE** *button) to save the setting.*
8) *Press* **ENTER** *(***DRIVE** *button) again from the Interval screen to activate the function. Press* **On** *(***AF** *button). Note that this now reads* **Off** *and the line of text at the bottom of the screen reads '***Interval on***'.*

   Half-press the shutter release button to standby mode for this function (press the shutter release button again (full press) for activation) or full-press the shutter release for immediate activation.

Check the lower text-row on the screen for ON or OFF status.

An Interval setting can be stopped mid-sequence by pressing the ESC button.

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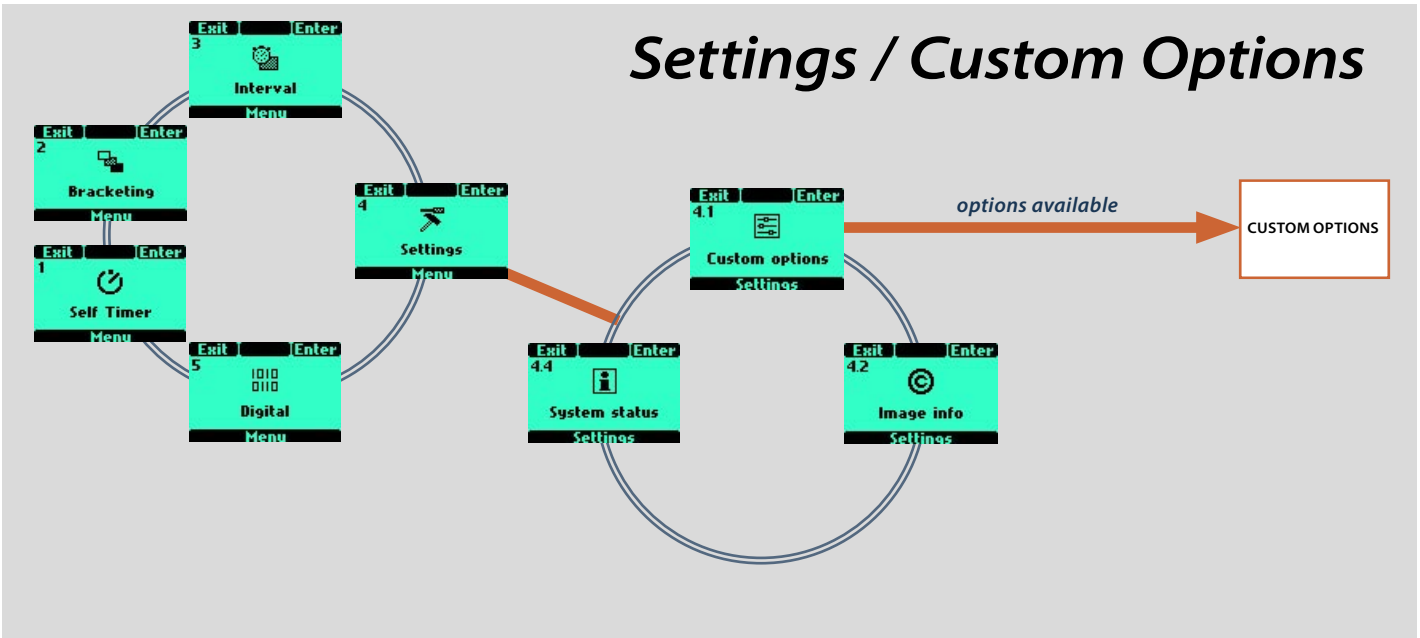

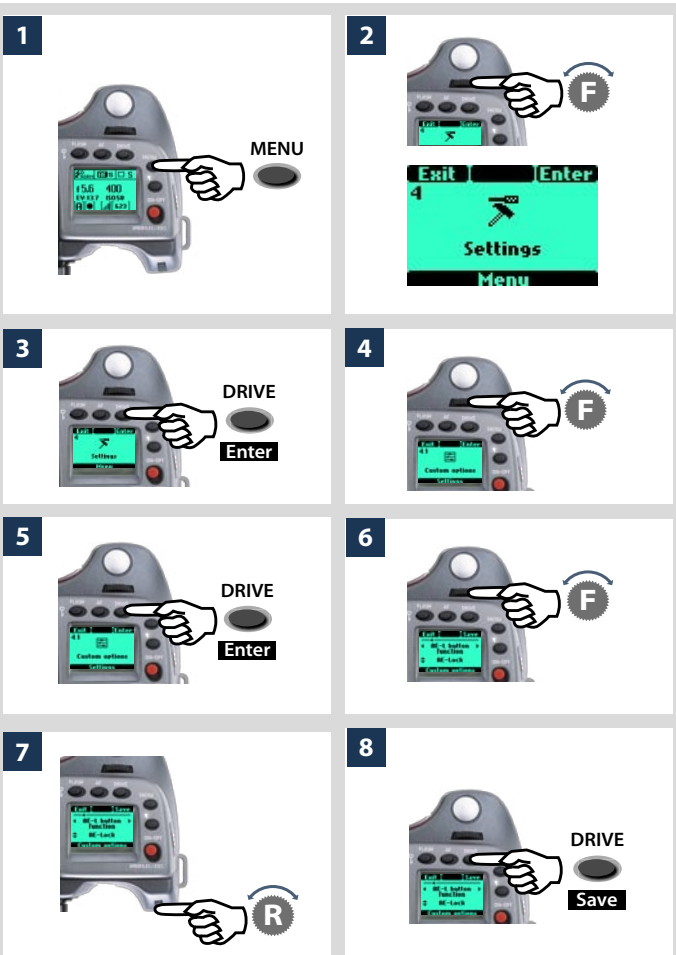

4 Settings

From the **Settings** *screen you can access three main sub-settings:* **Custom options**, **Image Info** *and* **System status** *by turning the front control wheel. From each of these three sub-settings you can access further screens.* **Custom options** *has more than 24 screens,* **Image info** *has two more screens each with more choices and* **System status** *has two more screens. Look at the main menu chart to get an idea of where all the options are on the menu tree*

4.1 Custom options

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Settings** *appears.*
3) *Press the* **DRIVE** *(***Enter***) button on the grip.*
4) *Turn the front control wheel to access* **4.1 Custom options**.
5) *Press the* **DRIVE** *(***Enter***) button to access the more than 25 choices available.*
6) *Turn the front control wheel to the desired Option.*
7) *Turn the rear control wheel to the desired Setting.*
8) *Press* **Save**

As shortcuts, press **MENU** *and then the* **USER** *button to instantly go to Custom Option level. Press the shutter release button to save the new setting.*

In the following list, the options marked in red are the default settings. So, in the case of the User button, for example, as None is the default there will be no reaction from the camera until you make a specific choice and save it.

If you want to reset the sensor unit to the default setting for all options, press the **ON.OFF** *button quickly to enter* **Profiles**, *select* **Standard** *and then press* **Load**.

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Standby timeout 1

• 5s • 10s • 15s • 30s

Determines the amount of time the camera remains active before it automatically reverts to standby mode (indicated on the grip LCD by the H2D logo).

Minimises battery consumption.

EV increment 2

• 1 Step • 1/2 Step • 1/3 Step

Determines the amount of EV change applied (per click of either the front or rear control wheels) to either aperture or shutter speed.

User button function 3

• None • Standby (enters standby) • Stop Down• Flash Measure • Interval timer • Self Timer • Bracketing • AF drive (lens in MF or AF) • Mirror up • B mode • T mode • Histogram (displays last histogram) • Grey balance exposure • Cycle LM mode • Delete last image • Dig. foc. check

Sets which function will be immediately activated when the User button is pressed (you cannot alter the setting in this mode though, only use it). The button has a toggle function so that by pressing it again the new setting will be de-activated.

AE-Lock button function 4

• AE-lock

but can be reassigned to:

• None • Standby (enters standby) • Stop Down• Flash Measure • Interval timer • Self Timer • Bracketing • AF drive (lens in MF or AF) • Mirror up • B mode • T mode • Histogram (displays last histogram) • Grey balance exposure • Cycle LM mode • Delete last image • Dig. foc. check

Stop down button function 5

• Stop Down

but can be reassigned to:

• Flash Measure • Interval timer • Self Timer • Bracketing • AF drive (lens in MF or AF) • Mirror up • B mode • T mode • Histogram (displays last histogram) • Grey balance exposure • Cycle LM mode • Delete last image • Dig. foc. check • None • Standby (enters standby)

M.UP button function 6

• Mirror up

but can be reassigned to:

• B mode • T mode • Histogram (displays last histogram) • Grey balance exposure • Cycle LM mode • Delete last image • Dig. foc. check • None • Standby (enters standby) • Stop Down• Flash Measure • Interval timer • Self Timer • Bracketing • AF drive (lens in MF or AF)

Control wheel direction 7

• Clockwise • Counter clockwise

Determines the effect the direction of the controls wheels have on a setting.

For example, by moving the front control wheel to the left you can alter the aperture setting from f/8 to f/6.8 to f/5.6 and so on. By changing the wheel direction setting however, the same action of turning the wheel to the left would then produce the opposite effect, that is, the aperture settings would change from f/ 8 to f/ 9.5 to f/ 11, and so on.

Flash ready exposure lock 8

• Yes • No

Allows you to make an exposure before the flash is fully charged. For use with integral flash unit or other TTL compatible flash units connected to the hot-shoe. Not valid for flash units connected by the PC connector.

Yes *blocks the shutter until flash is ready.*

No *allows shutter release before flash is ready.*

Lens exposure lock 9

• Yes • No

Allows you to release the camera without a lens attached.

Yes *blocks the shutter if there is no lens attached and also displays a message on the grip LCD: No lens.*

No *allows the camera to perform a release operation without a lens.*

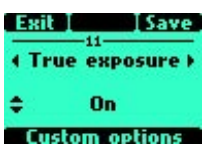
Out of range exposure lock 10

• Yes • No

Allows you to release the camera when either the aperture or shutter speed setting is beyond the working range (indicated on the LCDs by "—").

Yes *blocks the shutter if beyond the working range.*

No *allows the shutter to be released if beyond the working range.*



True exposure 11

• On • Off

Determines whether the exposure is automatically adjusted to create a true exposure setting. (See Appendix, Glossary of Terms for full explanation).

On *allows the adjustment.*

Off *retains the normal setting.*

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Spot mode 12

• *Normal* • *Zone*

Determines how the camera behaves when set to Spot Mode.

Normal *makes the camera behave in the same fashion as when set to Average or Centre Weighted.*

Zone *makes the camera behave in the same fashion as the Hasselblad 205FCC. That is, the central spot is placed over a particular area of the subject and the AE-L button is pressed. The exposure is then calculated assuming that the metered area is 18% grey or Zone 5 and is indicated on the LCD as Zone 5 (see Appendix / Glossary of Terms). Alternatively, the area can be reassigned to another zone by turning the rear control wheel.*

Then, when the camera is moved, the areas within the central spot are indicated by their zone values.

Focus aid in MF 13

• *Half press* • *Always* • *Off*

Sets how the focus aid arrowhead LED symbols appear in the viewfinder display in manual focus mode.

Half press *makes them visible when the shutter release button is pressed half way.*

Always *makes them visible all of the time when camera is active.*

Off *disables them completely.*

AF assist light 14

• *Camera* • *Ext flash* • *Off*

Allows projection of light pattern to assist the autofocus system in poor light or low contrast situations.

Camera *sets the integral AF assist illumination to be always active.*

External flash *activates the AF assist illumination projected by a suitable attached external flash unit. When detached, however, the integral system is automatically used.*

Off *sets the AF assist illumination to remain always inactive.*

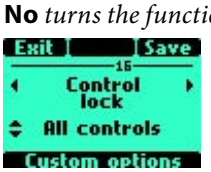
Rear wheel quick adjust 15

• *Yes* • *No*

Allows rear control wheel to make a rapid EV adjustment (or EV compensation) in auto-exposure mode.

Yes *turns the setting on. By turning the rear control wheel, the adjustment is made and appears on both LCDs as a ± symbol between the shutter speed and aperture values. The amount of deviation also appears above the scale to the left of the aperture value on the viewfinder LCD.*

No *turns the function off completely.*



Control lock 16

• *All controls* • *Wheels* • *Off*

Sets the amount of locking used when the Control Lock button is pressed.

All controls *locks control wheels and buttons.*

Wheels *locks only control wheels. They remain operable in any setting mode, however.*

Off *disables lock function.*

Beeper 17

• *On* • *Off*

Sets the audible beeper signal.

On *enables the signal.*

Off *disables the signal.*

Show histogram 18

• *Yes* • *No*

Sets whether a histogram of a digital exposure appears on the LCD after exposure. Only for use together with digital backs that support this feature.

Yes *enables the setting.*

No *disables the setting.*

Interval & Self Timer 19

• *Exit* • *Stay*

Allows either the Interval or Self Timer mode to remain active after an exposure or immediately return to standard setting.

Exit *clears the setting and produces an automatic return to standard setting after an exposure.*

Stay *retains the setting after an exposure.*

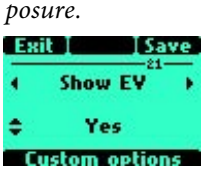
AE lock / Quick adjust 20

• *Exp reset* • *Saved*

Allows either the AE-Lock or Quick adjust mode to remain active after an exposure or immediately return to standard setting.

Exp Reset *clears the settings and produces an automatic return to standard setting after an exposure.*

Saved *retains the AE-Lock or Quick adjust settings after an exposure.*



Show EV 21

• *Yes* • *No*

Allows the display of EV settings on the grip LCD

Yes *enables the display.*

No *disables the display.*

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Show ISO 22

• *Yes* • *No*

Allows the display of ISO settings on the grip LCD

Yes *enables the display.*

No *disables the display.*

Bracket param. in Manual 23

• *Shutter speed* • *Aperture*

Selects either the shutter speed or the aperture as the parameter which changes in a bracketing sequence when in Manual exposure mode.

Shutter speed *selects changes in shutter speed.*

Aperture *selects changes in aperture settings.*

Aperture control in Manual 24

• *Front wheel* • *Rear wheel*

Selects which control wheel changes the aperture setting when in Manual exposure mode.

Front wheel *selects the front control wheel to change the aperture setting.*

Rear wheel *selects the rear control wheel to change the aperture setting.*

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Customizable button function list

The **USER, AE-L, STOP DOWN** and **M.UP** buttons can all be reassigned to different functions.

The **USER** button has no function until specifically assigned one (default is 'None').

The **AE-L, STOP DOWN** and **M.UP** buttons, however, by default are assigned the function appropriate to the name, until assigned otherwise.

The following is a description of the functions that these buttons can be assigned / reassigned to.

None

The user button has no function.

Standby

Sets the camera in standby mode to save battery consumption.

Stop down

Stops the lens down.

Flash Measure

Initiates flash measure function.

Interval timer

Initiates interval timer function.

Self timer

Initiates self timer function.

Bracketing

Initiates bracketing function.

AF Drive

Activates the AF system in any focusing mode. When the button is pressed the AF system sets the correct focusing point automatically. This is a rapid, accurate and handy way of using the AF system when the camera is set to Manual focus mode. In this manner you take advantage of the accuracy and certainty of the autofocus system while retaining the control inherent in manual focusing mode.

Mirror up

Controls the mirror up or down function (same function as the M-UP button).

B mode

Sets the camera to B exposure mode.

T mode

Sets the camera to T exposure mode.

Cycle LM mode

Changes the light-metering method in a loop manner: Centre Weighted/Average/Spot.

Histogram

Recalls the last shown histogram.

Grey balance exp.

Initiates a grey balance exposure.

Delete last image

Activate the delete function for the last image.

Dig. foc check

Displays last exposure taken at 100% scale on the OLED

A quick way to program the customizable buttons (and to access the Custom Option level in general) is to use the short-cut as follows:

1) *Press the* **MENU** *button.*
2) *Then press the* **USER** *button.*

   *This directly accesses the "***Custom options***" level in the menu and the "***User button function"** *item.*

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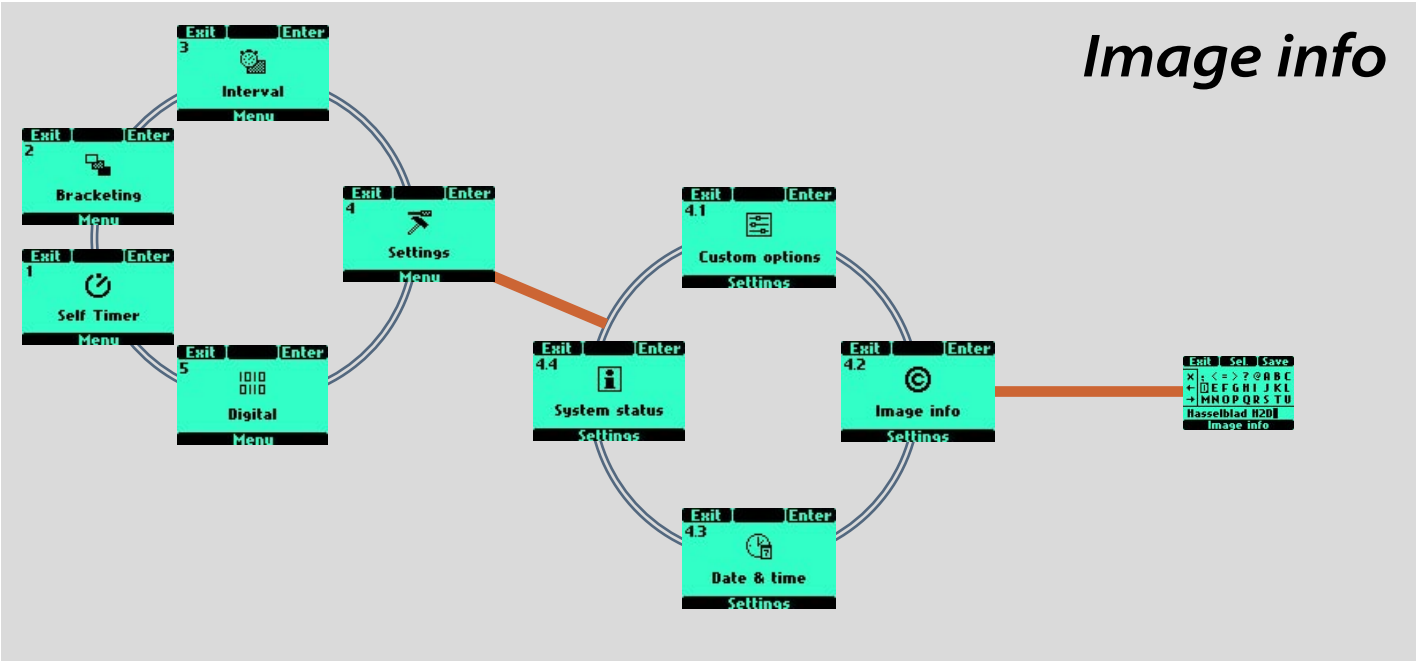

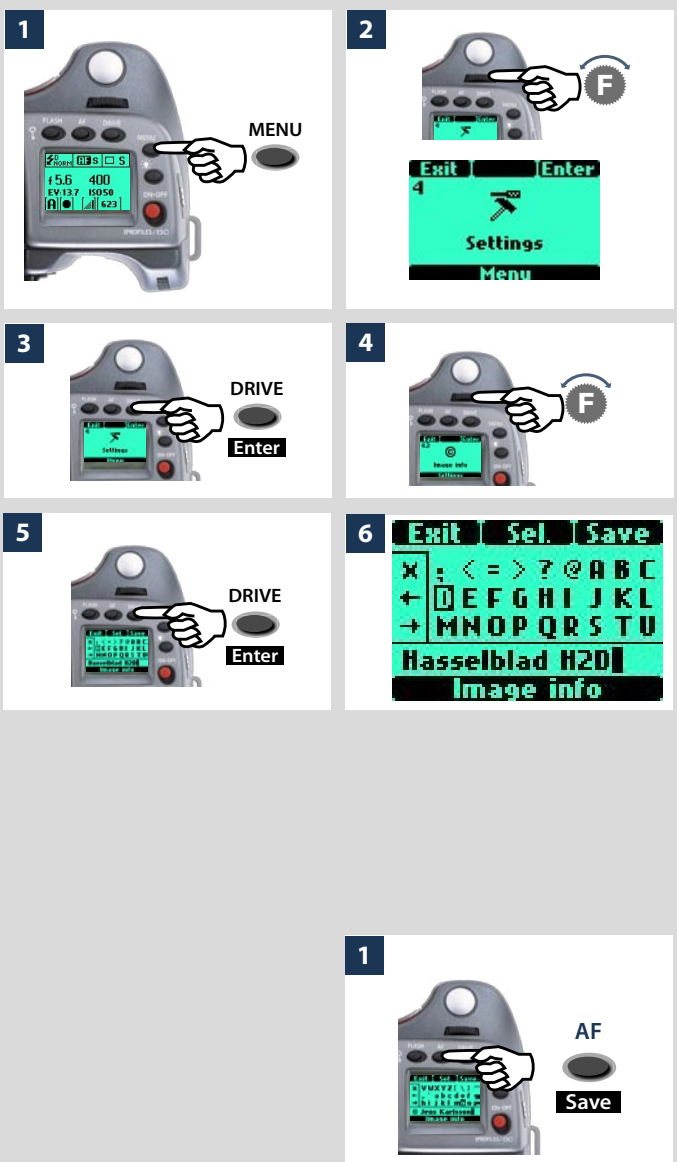

4.2.2 Image info

In Image info you can compose your own combination of letters, words, symbols, etc to be included in the metadata. The same procedure is also used to change a Profile name.

Text setting / Profile name changing

1) *Press the* **MENU** *button on the grip.*
2) *Turn the front control wheel until* **Settings** *appears.*
3) *Press the* **Enter** *(***DRIVE***) button on the grip.*
4) *Turn the front control wheel to access* **4.2 Image info**.
5) *Press the* **Enter** *(***DRIVE***) button to* **4.2.2 Text**.
6) *On the left side of the screen there is a small box frame containing an X symbol and two arrow symbols. By turning the front control wheel, the selector cursor will enter the box and by turning the rear control wheel the selector cursor will move up and down.*

- *When the X in the box is highlighted and the Sel.(AF) button is pressed, the character highlighted in the text line lower down the screen will be deleted.*
- *When an arrow in the box is highlighted, the text line cursor moves along the text line in the arrow's direction, moving past every character with every click on the Sel.(AF) button to the desired position. The highlighted character in the text line can then be replaced by a new character chosen by moving the selector cursor out of the box, positioning it over the new character to highlight it, and then pressing the Sel.(AF) button.*
- *By turning the front control wheel, the cursor moves horizontally.*
- *By turning the rear control wheel, the cursor moves vertically and introduces all available characters by scrolling the screen.*

So, to write and store the characters, proceed as follows:

1) *You can firstly clear an unwanted line of text by highlighting the X symbol in the box and repeatedly pressing the* **Sel.***(***AF***) button.*

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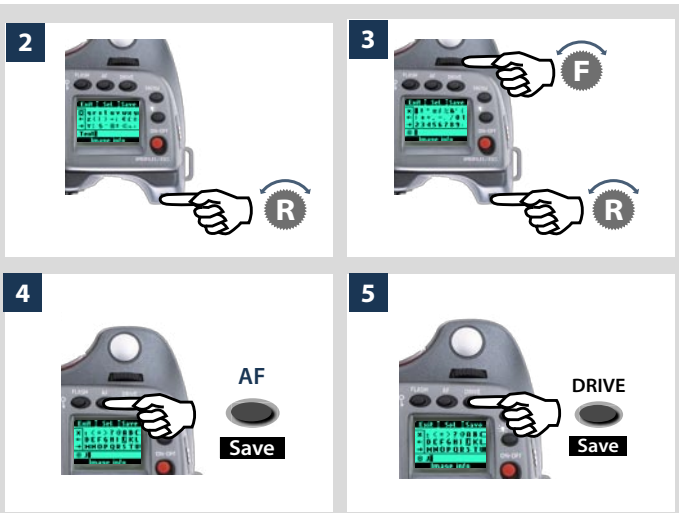
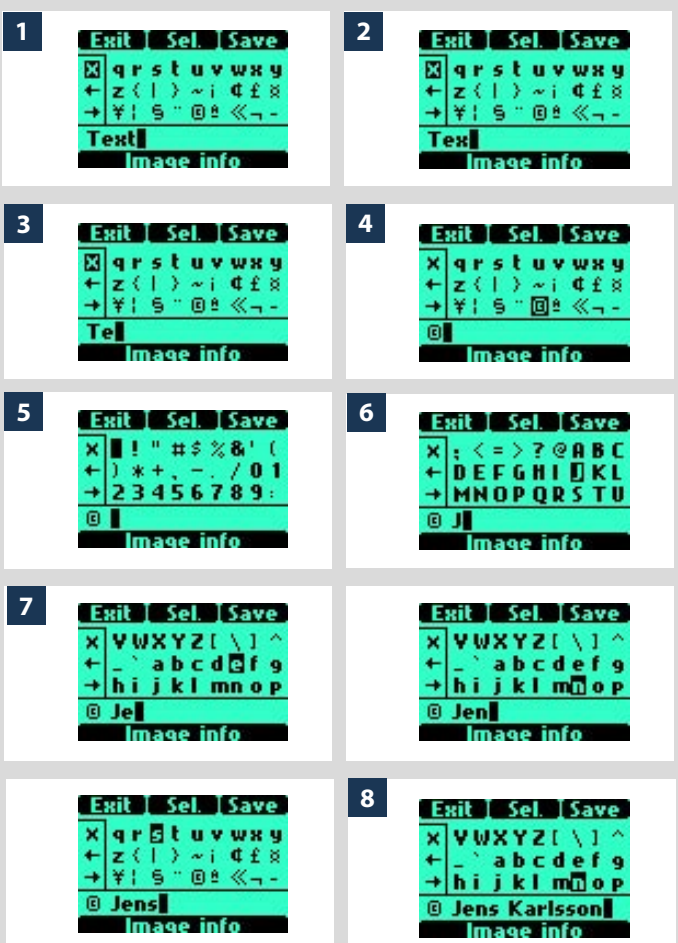


2) *Find the character you want by scrolling with the rear control wheel until it appears on the screen. (The 'space' character is the 'empty space' to the left of the exclamation mark, top row furthest to the left).*
3) *Move the selector cursor with a combination of the front and rear control wheels until the desired character is highlighted.*

4) *Press the* **Sel.***(***AF***) button to save the character that will then appear in the text line along the lower part of the screen.*
   Continue with the same procedure until you have completed the line of characters and symbols.
5) *Press the* **Save** *(***DRIVE***) button to store the new setting.*

Changing text - an example

Here is an example of how to change existing text (in this case the word 'Text' to a copyright symbol plus a photographer's name -'Jens Karlsson'). See previous section '4.2.2 Image info for procedure description.



1) *Start by accessing the* **Image info** *screen. On the text row towards the bottom of the screen, the text line cursor is automatically placed to the right of the character that is to be changed. Turn the front and rear control wheels to move the selector cursor until the X symbol is highlighted.*
2) *Press* **Sel.** *(***AF** *button) and the character will be erased.*
3) *Repeated pressing of* **Sel.** *will progressively erase all the characters in the line.*
4) *After erasing unwanted text, turn the front and rear control wheels until the desired character is highlighted by the selector cursor (in this case the copyright symbol) and press Save. Note that more symbols have automatically appeared as you scrolled down the screen.*
5) *Choose the next character in the same manner (in this case a space) and press* **Save**.
6) *The capital letter 'J' has been highlighted and saved in this example.*
7) *Repeat the procedure until all the letters and characters you want appear. As you progress with more characters, those to the left will temporarily disappear from the screen so that you can see what you are adding. Don't forget there is a maximum of approximately 40 characters.*
   If you make a mistake you must remove each character singly (see steps 1-3 above) until you reach where you want to make a change and then return to the 'Adding text' procedure again.
8) *This example shows a completed 15 character text line with symbols, spaces, upper and lower case (large and small) letters.*

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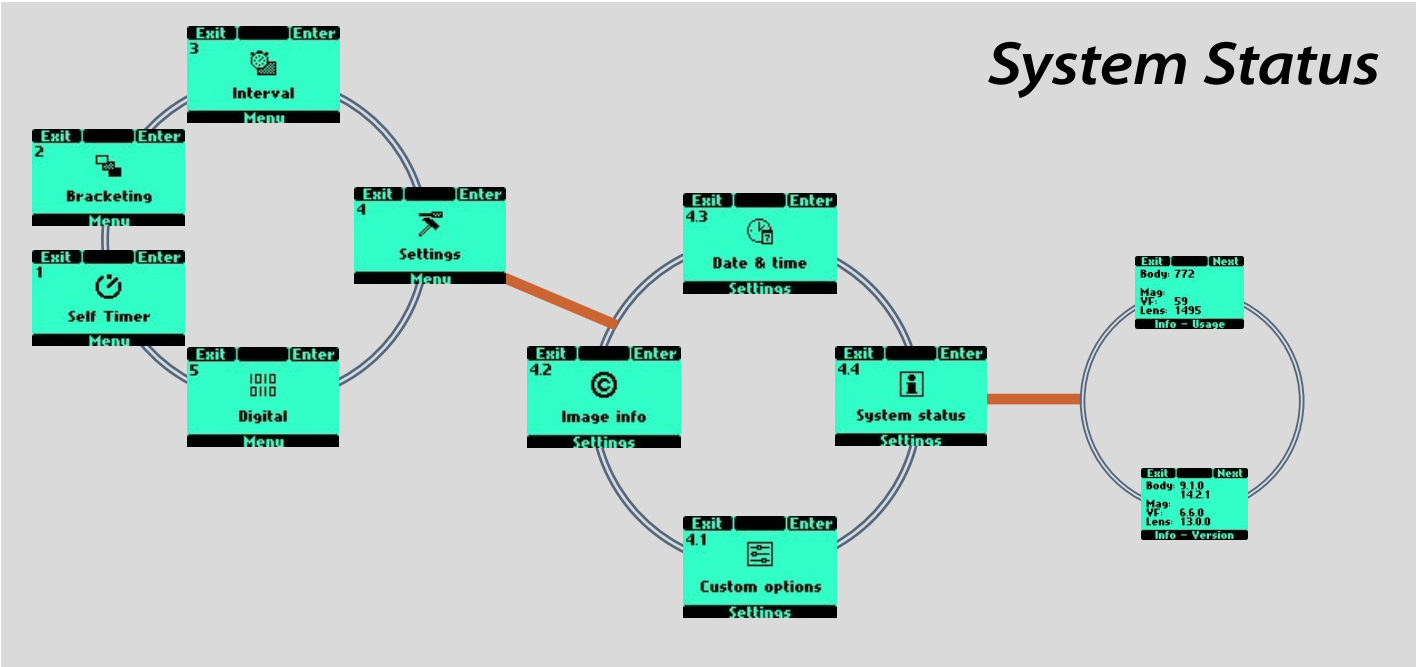

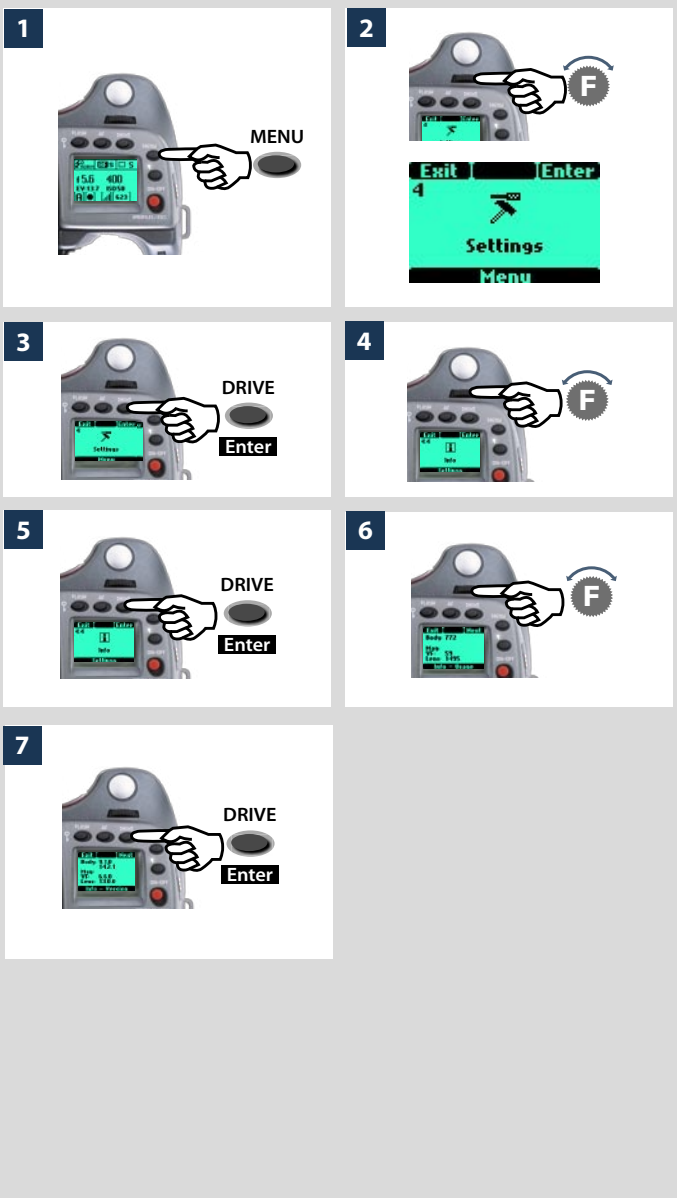

4.4 System Status

Check component usage for servicing reasons as follows:

1) *Press the* **MENU** *button on the grip.*

2) *Turn the front control wheel until* **Settings** *appears.*

3) *Press the* **DRIVE** *(***Enter***) button on the grip.*

4) *Turn the front control wheel to access* **Info**.

5) *Press the* **Enter** *(***DRIVE***) button*

6) *Press the* **Enter** *(***DRIVE***) button. The display now shows a list of camera components and to the right of each individual component a figure that represents the number of actions taken by that component. Please note that even a completely new camera will have registered actions as these occur during testing before delivery.*

7) *Press the* **Next** *(***DRIVE***) button to display the software version for each item.*

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11 Flash

- Sync at all shutter speeds to 1/800s
- Integral fill-flash
- SCA 3002 compatible
- Flash measure capability
- Rear sync capability

The H system meets professional demands for a variety of situations where flash is required.

It includes an integral flash primarily intended for fill-flash use but strong enough for simple close work.

Combined with an adapter and a portable unit, H cameras can exploit the automatic features offered by Metz and other top names in the field for powerful and reliable solutions

When in the studio, the H system is capable of providing flash metering for maximum control and security.

H2D

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The H2D can be used together with most flash units in manual mode. However, to make use of a TTL automatic function, you must ensure the flash unit is compatible with the SCA 3002 system. Connection is either by the PC socket or by the hot shoe (see warning note below).

The viewfinder houses an integral fill-flash with a guide number of 12 and features OTF/TTL flash control. This unit is capable of providing enough illumination for many fill flash functions outdoors as well as simple indoor shots at shorter distances.

Flash output can be adjusted separately from ambient exposure for optimum control.

Separate flash units can be used in dedicated mode when connected to the hot shoe if the unit is compatible with the SCA3002 (Metz) system using a Hasselblad SCA3902 adapter. This provides a cable free link up for information transfer.

Flash synchronisation can be set to normal or rear (the beginning or end of an exposure).

Please see the relevant user manuals for information regarding separate flash units.

As with all strobe/studio flash use, very particular attention should be taken to ensure correct connections and general handling practice. Potential dangers might increase when cameras are also connected to electronic peripherals (digital backs, computers, lighting units, etc) and should diminish when IR and similar wireless flash release devices are used.

Victor Hasselblad AB and Hasselblad A/S can accept no responsibility whatsoever for accidents that might occur or damage caused when Hasselblad equipment is used in combination with third-party units of any description.

Do not attempt to connect a flash unit dedicated for use with another camera brand via the hot shoe. The flash unit and / or camera could be damaged.

General

When using the A or S setting together with flash, the exposure requirements of the camera will dominate which might produce slow shutter speeds indoors, for example, requiring the use of a tripod. If, on the other hand, you select P or Pv instead, then a shutter speed of 1/60 or faster is automatically chosen by the camera enabling you to hand hold.

When using flash close up or when using larger aperture settings, remember that the flash unit's output has a specific minimum duration which might still be too great for correct exposure. Read the unit's output specifications for further information regarding any potential restrictions.

You can use the flash metering capability with external flash units of all kinds (TTL flashes must be set to Manual mode).

Rear sync is a useful feature used either for effect or to produce a more 'natural' look when combining long exposures involving light trails and flash.

When using suitable dedicated units (compatible with SCA3002), adjustments are made automatically and governed by the settings on the camera. This applies to whether the flash unit is set to TTL or whether it is set to its own integral metering system (A).

Control of either the integral flash unit or separate SCA3002 compatible flash unit regarding the two functions, exposure compensation and shutter sync, is via the grip. The flash measure function can be used for flash units that are not SCA 3002 compatible or for SCA 3002 compatible units at manual setting.

Only flash units specially adapted for use with the H2D should be connected to the hot shoe on the camera.

To change the balance between flash output and camera exposure requirements to produce a variety of effects, use the exposure compensation function. For various long exposure effects use the sync function. To make flash exposure tests use the flash measure function.

To access the controls:

1) *Activate the camera and press the* **FLASH** *button once.*
2) *Turn the front control wheel to set the amount of compensation required:*
   - *from +3EV through -3EV*
   - *press* **Clr** *(***AF** *button) to clear the setting quickly if required.*

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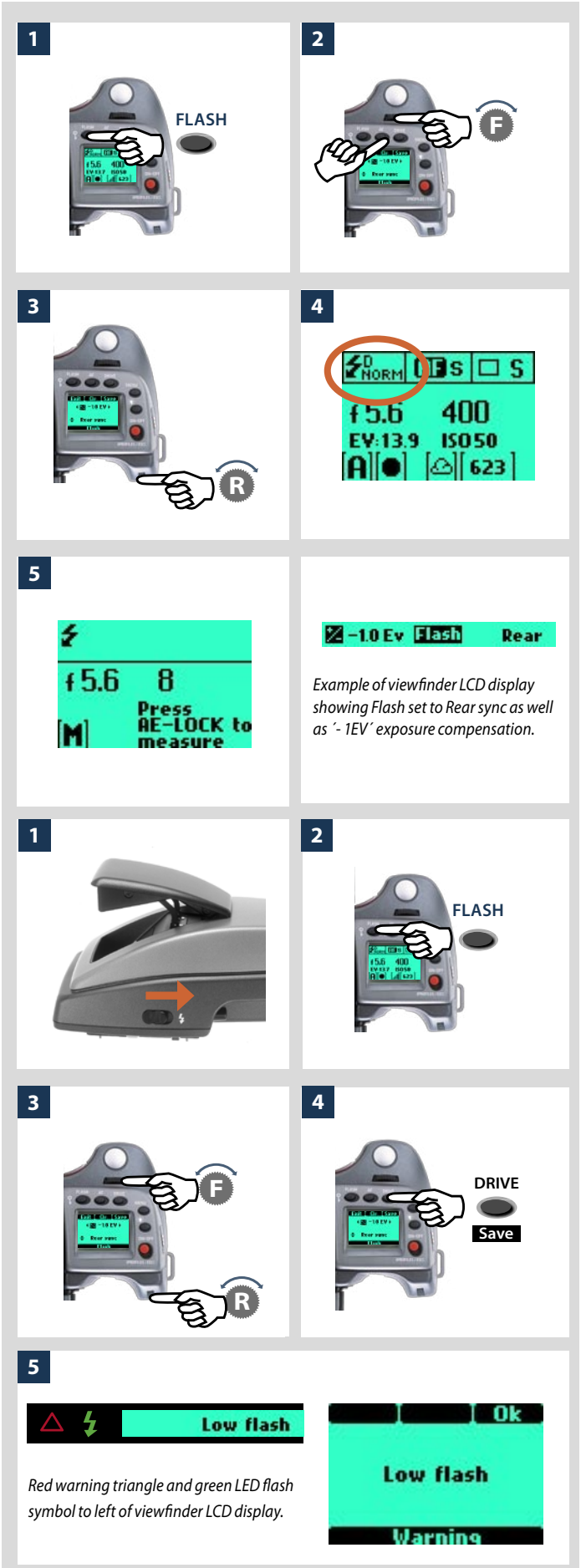

3) *Turn the rear control wheel to set:*
   - ***normal sync*** *(flash triggered just after the shutter opens)*
   - ***rear sync*** *(flash triggered just before the shutter closes)*
   - ***flash measure*** *(with non-TTL flash units or TTL units in Manual mode)*
4) *The grip LCD shows the flash mode - Normal or Rear - in the standard display.*
5) *When set to Flash Measure, a specific screen requests you to press the AE-L button in order to make a reading. See below for details.*

Integral flash

The integral flash unit features the following specifications:

Guide no.	*12*
Coverage	*56º horizontal, 44º vertical*
Maximum light fall-off at side centres	*- 1EV (50%)*
Colour temperature (full flash)	*5,000 – 5,600º K*

To raise the flash unit into its operative position, slide the flash-unit catch backwards in the direction of the flash symbol. To return the flash unit into its closed position, push down on the top of the unit until it clicks back into place. The flash unit is automatically activated when it is in the operative position and de-activated when returned to its stored position.

The green LED flash symbol blinks in the viewfinder when the flash unit is charging and remains stationary when fully charged. The flash output can also be adjusted for optimum light balance in fill-flash situations.

Do not use the integral flash together when another external TTL flash unit is connected (and used in TTL or A mode)

For full coverage with the integral flash, use 80 mm or longer lenses (without a lens shade).

Using the integral flash:

1) *Slide the flash-unit catch backwards in the direction of the flash symbol.*
2) *Press the* **FLASH** *button.*
3) *Choose between* **Normal** *or* **Rear** *sync by turning the rear control wheel and the amount of compensation (if required) by turning the front control wheel.*
4) *Press* **Save** *(***Drive** *) button. Make an exposure.*
5) *If the settings were incorrect to match the output of the flash unit, the viewfinder LCD displays a red triangle alongside a flashing green 'flash' symbol plus a warning message - '***Low flash***'. The grip LCD will also display a warning message - '***Low flash***'.*

   Conventional measures should then be taken to correct the situation. (That is: move closer to the main subject, use a larger aperture setting or use a higher ISO setting).

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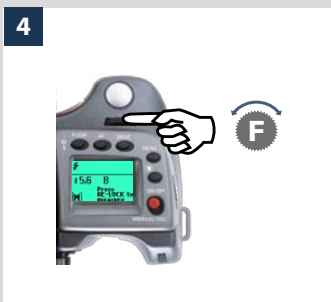

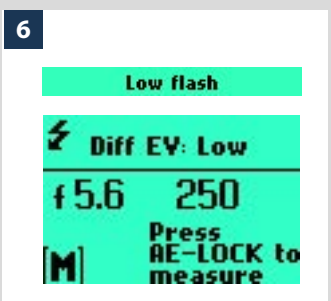

Separate flash unit connection and use

Separate flash units can be electrically connected either by way of the hot shoe accessory holder (see previous warnings) on the top of the viewfinder or via a cord to the PC connection port on the left hand side of the camera body. Slave unit switches/ transmitters can also be connected similarly dependant on unit (see specific user manuals for details).

Keep the plastic safety cover in place in the hot shoe when not in use.

Flash measure of separate flash unit

You can measure the effect of an attached flash unit (with PC connected flash units and SCA3902 compatible flash units set to M mode), where the camera acts much as a flash meter would. The aperture setting can be adjusted and more trial exposures made until the information on the grip LCD is satisfactory.

To use flash measure:

1) *Press the* **FLASH** *button on the grip to access the flash option screen.*
2) *Turn the rear control wheel until* **Flash measure** *appears.*
3) *Press* **Save** *(***DRIVE** *button) to access the flash exposure screen.*
4) *Make preliminary required aperture setting by turning the front control wheel.*
5) *Press the* **AE-L** *button. The camera will close the aperture, raise the mirror and fire the flash. Light reflected from the flash lit subject will be reflected off a white spot on the auxiliary shutter to the meter sensor.*
6) *Deviations from a normal exposure are displayed as differences in EV on the grip LCD and the viewfinder LCD. If '***high***' or '***low***' appears, change the aperture accordingly and make a new test reading.*

   Change the aperture until **Diff EV: 0** *appears, or the desired amount of deviation from the normal exposure.*

   Diff EV: **Low** *signifies more than 2 EV under*

   Diff EV: **High** *signifies more than 2 EV over*

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12 Optional Accessories

- Converter
- Extension tubes
- Release cord
- Filters
- Tripod quick coupling
- Support strap
- Grid focusing screen
- CF adapter
- Proshade

Optional accessories provide the opportunity to extend the capabilities of your system or just to add extra convenience to suit your way of working.

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There are a number of optional accessories available for the H2D with more being developed to suit a variety of photographic situations and needs. Please see www. hasselblad.com for the latest information. The figures in brackets after the headings are the product codes.

Converter H 1.7X (3023717)

The Converter attaches between the lens and the body to increase the focal length by a factor of 1.7.

This provides a convenient way to expand your range of lenses. The Converter H 1.7 X features the same outstanding optical and mechanical quality as all the lenses in the Hasselblad H system. The optical design consists of 6 elements in 4 groups.

H 13, 26 and 52 Extension tubes (3053513, 3053526 and 3053542)

The Extension tubes attach between the lens and the body to reduce the close focusing distance for close up photography. They are available in three sizes: 13mm, 26mm and 52 mm. As the H2D has a TTL light metering system, exposure compensation is automatic.

Release cord H (3043370)

Remote release cord with a cable length of 0.5 m.

UV-sky filters (3053470, 3053474 and 3053478)

Absorbs UV radiation and reduces blue haze without affecting colours. Also protects the front lens surface. Particularly recommended when the camera is used in harsh conditions. Available in three sizes to suit various lenses: UV-sky 67 mm (3053470), UV-sky 77 mm (3053474) and UV-sky 95 mm (3053478).

Pola filters (3053482, 3053486 and 3053490)

Reduces non-specular reflections and glare. Increases colour saturation in general. Can intensify a blue sky. Available in three sizes.

Tripod quick coupling H (3043326)

Mounted on a tripod, this accessory facilitates rapid attachment and removal of the camera. The camera is firmly held in an exact and repeatable position. Two integrated spirit levels make horizontal positioning of the camera easy. The Tripod quick-coupling H fits 1/4" and 3/8" tripod threads and has a safety catch.

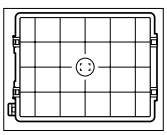
Support strap H (3053623)

Improves comfort and security with hand-held photography.

Camera strap H (3053616)

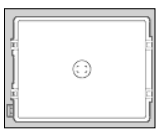
Extra wide camera strap with anti-slip backing.

Focusing screen HS-grid (3043310)



Spherical Acute-Matte D type with grid and central markings for spot (Ø 7.5 mm) and AF metering area. Grid provides aid in technical, architectural, and other detail photography.

Focusing screen HS-standard (3043305)



Spherical Acute-Matte D type. Central markings for spot (Ø7.5 mm) and AF metering area. Supplied with all H2D camera bodies.

CF Adapter (3043500)

The CF adapter allows virtually all lenses from the V-system to be used on H-system camera bodies. This automatically expands the potential lens range for H cameras by more than a dozen different focal lengths.

Proshade V/H 60 – 95 (3040740))

An adjustable bellows lens shade that provides highly efficient protection against stray light. Its compact, flat folding design saves space in the equipment case. With adapters fits all H lenses and virtually all V system lenses. Also features a filter holder for glass, gelatin, or plastic filters.

Proshade adapters 3043415, 3043417, 3043419

67 mm, 77 mm and 95 mm adapters with bayonet mount for HC lenses. Features lock to provide positive and secure attachment.

Flash adapter SCA 3902 (3053393)

For connecting flashes compatible with the SCA 3002 system to the Hasselblad H2D.

Check on the Hasselblad website – www.hasselblad.com – for further details or news of new accessories.

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13 Appendix

- Glossary of Terms
- P and Pv explanatory charts
- Technical specifications
- Equipment Care, Service & Guarantee

This section provides an insight into the more technical aspects of the H system as well as some important reference information.

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Glossary of Terms

For the sake of clarity, here are short and simple explanations of several terms, items and features mentioned in the manual that may be unfamiliar to some.

Bracketing

The practice of making extra exposures over or under (normally both) the 'standard' exposure to ensure the desired result. This is particularly useful in difficult, wide-ranging lighting conditions. Easily set and controlled with the H2D.

Custom setting

The setting chosen by the user that differs from the default setting.

Click / Press – On.Off button

The ON.OFF button can be depressed in two different ways which in turn cause different results. This distinction is referred to in the text as ***clicking*** and ***pressing***. ***Clicking*** is a very rapid depressing of the button with immediate release whereas ***pressing*** is a longer depression of the button with maintained pressure.

EV

Exposure Value. It represents the standard photographic notation within exposure control. For example, if you change the aperture on a lens from f/11 to f/8, you will increase the exposure by 1EV. Similarly, if you change the shutter speed from 1/15s to 1/60s you will decrease the exposure by 2EV. A change in EV can therefore represent a change in aperture, shutter speed or a mixture of both. It is a simpler and more useful way of referring to the essential effective combination when making exposure settings without referring to the implications and sometimes confusing aspects of specific shutter speeds or apertures.
As a practical example, if you are using 'exposure compensation', the settings are in EV's (often referred to as 'stops' in older descriptions) or fractions of EVs (or 'stops'). Therefore an exposure compensation of +1EV, for example, will provide 'one stop overexposure' and similarly an exposure compensation of -1/2EV, for example, will provide ' a half stop underexposure'.
See the chart in this manual for cross reference of EVs and their aperture/shutter speed equivalents

Default setting / factory setting

A standard setting that a device is set to in the first instance during manufacture and returns to if a setting change is halted or interrupted in any way.

Half-press / Full press – Shutter release button

The shutter release button can be depressed in two different ways. This distinction is referred to in the text as ***half-press*** and ***full-press*** positions. A ***half-press*** is a rapid, soft press whereas a ***full-press*** is a firmer and longer depression of the button.

LCD

Liquid Crystal Display. An electronic information panel. The grip and magazine both have LCD panels.

LED

Light Emitting Diode. Electronic devices used in information displays. The viewfinder display has LED's to the left and right of the integral LCD panel.

Mid-grey / 18% grey

An important point to be remembered is that all photographic exposure meters / light metering systems are calibrated to provide a reading that will reproduce a 'mid-grey or 18% grey tone' from the measured subject tone. This is an international photographic standard upon which all exposure calculations must be based. The H2D has very accurate and sophisticated exposure measuring modes. Pre-programmed information is taken into account via the metering system when calculations are automatically made. This provides a very satisfactory compromise for a host of photographic situations and many users will certainly be very satisfied with the consistently high quality of results. Nevertheless, some situations are either so technically difficult or open to interpretation that manual intervention is advised to ensure the desired result. Naturally, many seasoned users always prefer manual control but they base their calculations and decisions on much experience.
To illustrate this point, imagine the following example:
Pin two sheets of paper, one black and the other white, onto a grey wall. Take three exposures using an average light reading; a close-up of the black sheet, a close-up of the white sheet, and a distance shot of the whole wall including the two sheets. Without any manipulation, the first two exposures will produce a tone that is similar to the wall, namely, a grey tone; not black or white. The third exposure, however, will reproduce the wall as a grey tone while the two respective sheets now appear as black and white respectively, as originally observed.
However confusing this might at first seem, it is fundamental to mastering exposure calculations and exposure control. If you are at all unsure about this basic concept, you are strongly recommended to refer to a general photographic manual for a fuller explanation in order to obtain the maximum from your H2D.

OLED

Organic Light-Emitting Diode - a display device that emits light and thereby does not require backlighting.

OTF

Off The Film - the original literal description of the light measurement mechanics regarding flash exposure measurement that now applies to digital sensors too.

Profile

You can allow the H2D to be set according to 'profiles'. These profiles are combinations of modes, methods and settings (custom or default) that suit specific photographic situations. By using a personal profile - which you can create, name and save - the camera is immediately configured for a specific purpose without any need to check through the menus. This is a very rapid and secure way of working when repeatedly confronted with similar photographic situations.
As an example you might regularly take outdoor portraits of wedding couples with a long lens. You want a specific aperture to restrict depth-of-field and a fairly fast shutter speed to freeze any movement. You are concerned about the couple blinking during the exposure and so want to take several shots in succession, possibly with slight variations in exposure settings for safety's sake so you might choose

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the bracketing option too. All these parameters can be preset and stored as a profile that is rapidly accessible.

Quick save

When altering settings, a half-press of the shutter release button will cause a return to the main screen and save the new setting at the same time.

Standard exposure

A 'standard exposure' in the manual refers to the concept of technically correct in accordance with internationally accepted photographic measurement standards (see section on Mid-grey / 18% grey). This does not imply, however, that it would automatically be the preferred choice or be 'correct' according to the desired result. See section on Bracketing.

Main screen

To simplify the descriptions, reference is often made to a 'main' screen regarding the menu. Apart from default settings, there is no standard setting in the normal sense and therefore you create your own 'standard', which of course can be changed at any time.
The 'main' screen is therefore the one you have currently created and is the one visible on the LCD when photographing (except where a particular mode is in actual operation, such as self-timer, for example).

TTL

Through The Lens - a literal description of the light measurement mechanics. The advantage is that only the essential parts of the subject in front of the camera are included. Accessories such as filters, bellows, close-up rings, converters, etc that could affect exposure are also taken into account automatically with exposure evaluation (for general purposes).

Time out

This is the time interval that a temporary setting is maintained for before it automatically returns to the original setting (default or custom).

Zone (system)

The Zone System is a method of combined exposure calculation/ film development providing a great deal of tonal control. It was originally devised by Ansel Adams - the classic landscape photographer and Hasselblad user - and now exists in various forms for both black & white and colour photography.
Naturally in the case of the H2D or any other digital camera, the film development part of the method can not apply. However, some photographers are used to its philosophy and are familiar with its terminology and might like to still refer to it.
An integral part of the method includes the classification and grouping of any given scene into a range of nine (or ten) so-called zones, hence the name. Concerning the H2D, the word zone refers to the grouping and classification of various tones, where Zone V is the equivalent (whether in black & white or colour) to 18% mid-grey on a scale of Zone I (black) through Zone IX (white). See specific literature for a complete description of this method.

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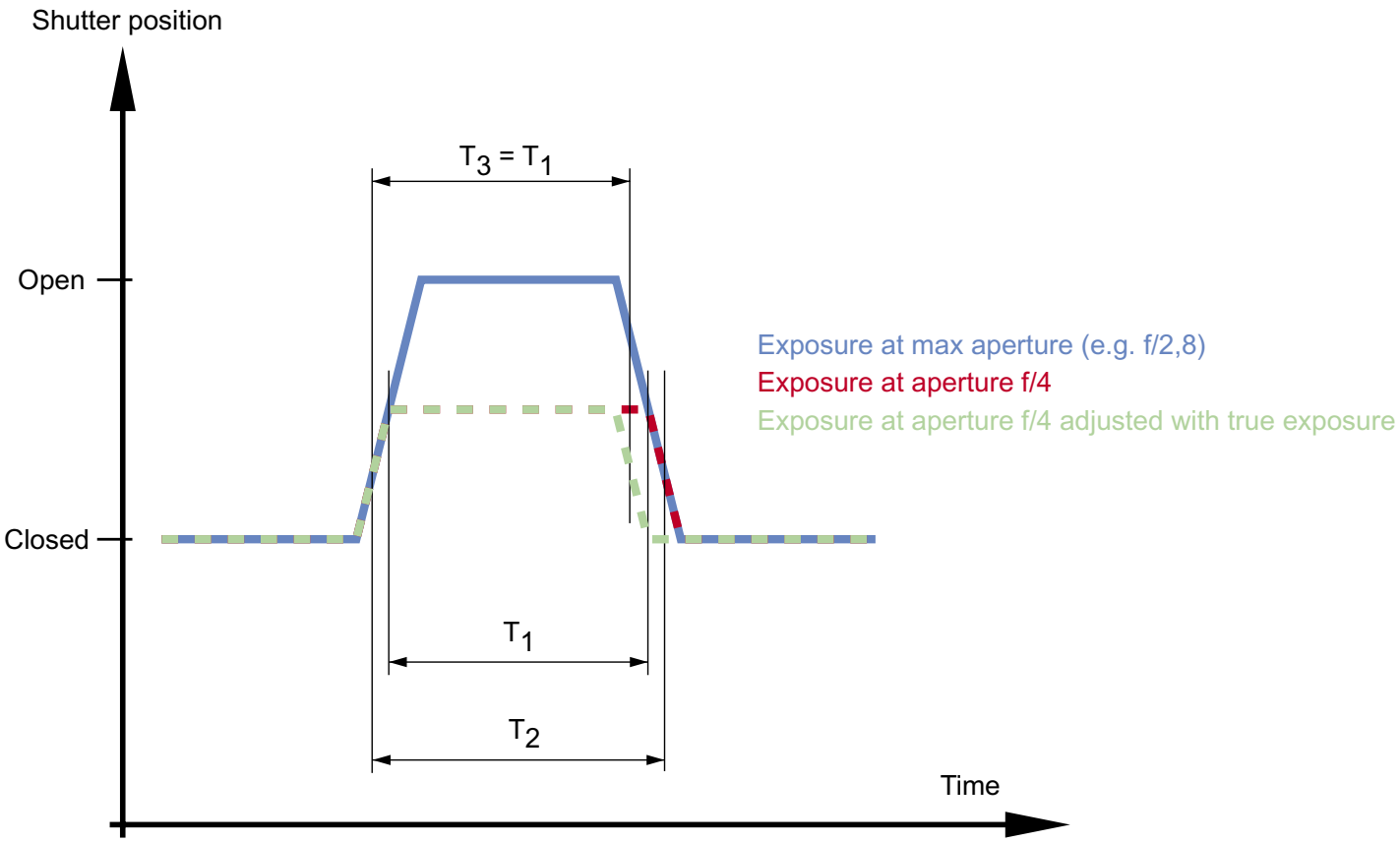
True exposure



True exposure

The effective shutter speed for a central lens shutter is defined as the length of time between the opening and closing when measured at the half height position when expressed in diagram form (see diagram). The fact that it will take some time to open and close the shutter will have an influence on the effective shutter speed as the lens aperture closes to its setting. The faster the shutter opens and closes, the less this influence will be. It is also follows that the influence will be greater on shorter shutter speeds.

With the lens at full aperture (largest opening), the amount of light at the film plane appears as illustrated by the blue curve in the diagram. The effective shutter speed then becomes T1. If the lens is now closed down by one stop, the amount of light appears as illustrated by the red dashed curve. The effective shutter speed is now increased to T2, which is longer that T1. The result is that the exposure is not reduced by exactly one stop (1EV), however, but slightly less. At the shorter shutter speeds, the exposure error can be as much as 0,5 – 0,8 EV.

The True exposure mode can compensate for this exposure error since the behaviour of the shutter is a known and predictable factor. At shutter speeds of 1/150 second or shorter (faster), the camera will shorten the shutter speed to compensate, as illustrated by the green dashed curve. At the fastest shutter speeds, however, it is not possible to adjust the shutter speed and so the aperture is adjusted instead.

Although it is probably an infrequently used combination, please note nevertheless that the fastest shutter speed / minimum aperture combination cannot be adjusted by True exposure.

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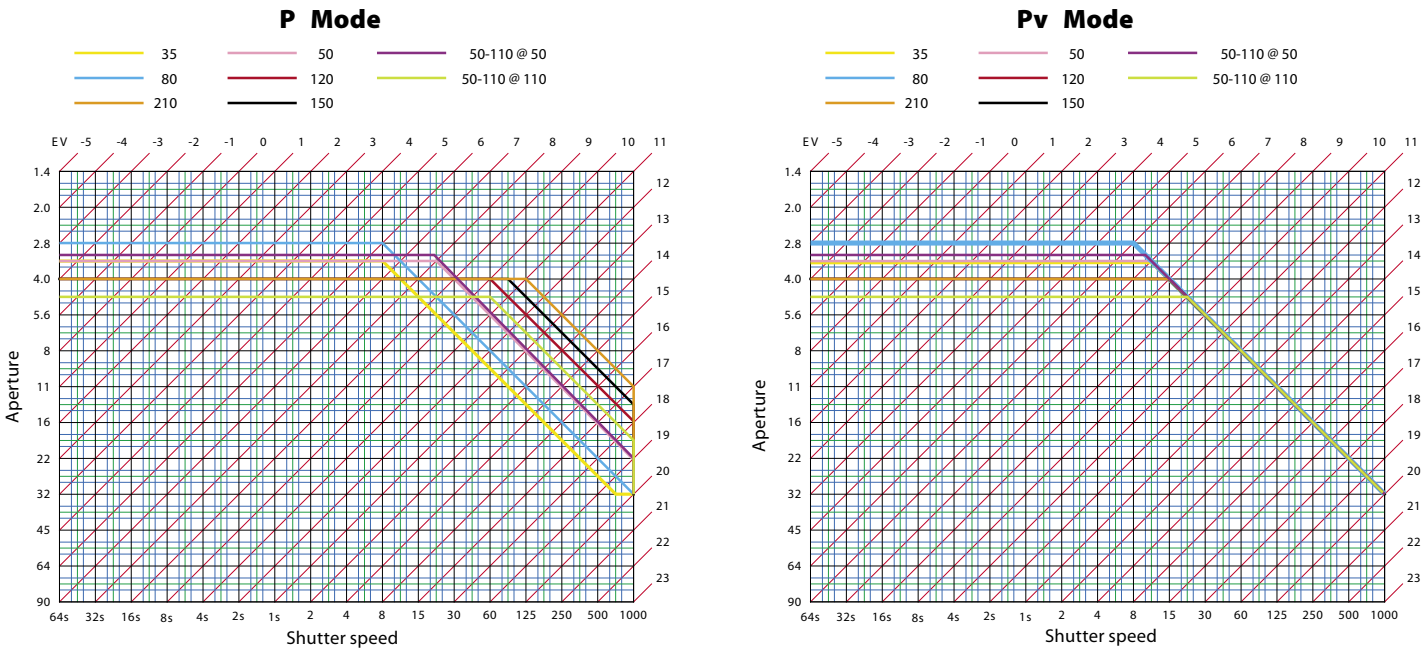
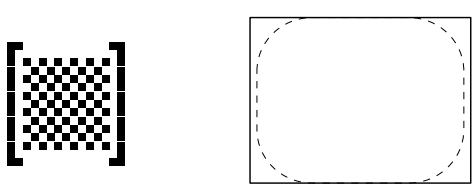
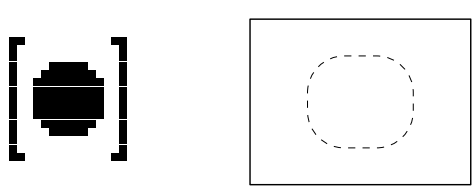
Automatic exposure — P & Pv Mode



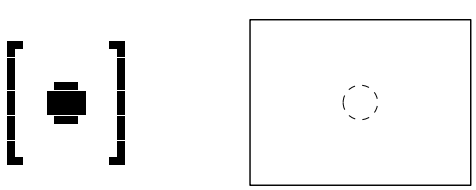
Light metering method sensitivity distribution



Average
(45 x 37 mm)
≈ 95%



Centre weighted
(23 x 20 mm)
≈ 25%



Spot
(diameter 7.5 mm)
≈ 2.5%

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Technical specifications

Camera Type	Auto-focus, auto-exposure digital SLR camera with interchangeable viewfinders and lenses.
Construction	One piece stainless steel shell. Die-cast aluminium internal structure. Tripod sockets (1/4 and 3/8") and quick coupling tripod plate for rapid mounting.
Lenses	Hasselblad HC lenses with built-in electronically controlled shutter and aperture. Automatic or manual focusing with instant manual focus override. All HC lenses have been especially designed to meet the exacting requirements of digital photography. Lens shades can be mounted in reverse for transport.
Viewfinders	A 90° reflex viewfinder, providing 100% field of view even when wearing eyeglasses, and built-in multi-mode light metering system. Image magnification 2.7. Integrated fill-in flash with guide number 12. Hot-shoe for automatic flash (Metz SCA3002 system / adapter SCA3902). Dot matrix LCD with presentation of all relevant information. Built-in diopter adjustment from –4 to +2.5D.
Focusing	Automatic and manual focusing with electronic focus aid in manual mode. Instant manual focus override. Automatic focusing using passive central cross type phase detection sensor. AF metering range EV 1 to 19 (ISO 100).
Image format	36.7 x 49 mm / 22 MPixel.
Shutter	Electronically controlled lens shutter with speeds ranging from 32 seconds to 1/800.
Flash control	TTL centre-weighted system. Can be used with the built-in flash or a wide variety of flashes compatible with the SCA3002 (Metz) system using adapter SCA3902. ISO range16 to 6400. Flash output can be adjusted for fill-in purposes independent of ambient light.
Flash measurement	The H2D has a built-in measurement system that measures flash light from non-TTL flashes, such as studio flashes.
Exposure metering	Multi-mode exposure metering using 90° reflex viewfinder. Metering options are: spot (diameter 7.5 mm), centre weighted, and average. Metering range at f/2.8 and ISO100: Spot: EV2 to 21. Centre-weighted: EV1 to 21 Average: EV1 to 21.
Auto bracketing	Bracketing using predetermined number of exposures (2, 3 or 5) in 1/3, 1/2, or 1 EV step difference intervals.
Interval timer	Number of frames from 2 to 255 and interval from 1 second to 1 hour.
ISO range	ISO range 50 to 400. Automatic setting with Barcode film.
Displays	The camera features two dot-matrix LCD's that provide clear and easy-to-understand information to the user. One is located on the grip and the other in the 90° viewfinder. The Sensor unit has a high contrast 2.2 inch OLED type display.
Focusing screen	Bright Spherical Acute-Matte type D. Optional type with grid markings also available.
Compatibility	All accessories for the H1/H2 series camera except film magazines and digital backs.
Accessory connection	Provided with two M5 threads and an electrical connector for accessories.
Customization	A large number of the H2D's functions can be customized by the photographer to suit specific styles or situations through the built-in menu system.

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User interface	Both basic and advanced functions are set using buttons and control wheels on the camera body in conjunction with the grip and viewfinder graphic interface LED's. Sensor unit menu visible and controllable from unit's OLED and from FlexColor on a tethered computer.
Battery grip rechargeable 7.2 V	Li-ion type. 7.2 V / 1850 mAh output.
Battery charger Li-ion 7.2 VDC	Uses DV charge termination technique to prevent over-charging.100–240 VAC / 50–60 Hz input. 6.0–7.9 VDC/ 800mA output
External dimensions	Complete camera with 2.8/80 mm lens: 153 x 131 x 213 mm – 6.0 x 5.2 x 8.4 ins. (W x H x L)
Weight	Complete camera with Li-Ion battery and CF card: 2175 g – 4lb 12oz.
SENSOR UNIT	
Sensor size	22 Mpixels (4080 x 5440 pixels)
Sensor dimensions	36.7 x 49.0 mm
Image size	66 MByte 8 bit RGB / 132 MByte 16 bit RGB
Shooting mode	Single shot
16 bit colour	Yes
ISO speed range	ISO 50 - 400
Longest shutter speed	32 seconds
Image storage	CF card, External FireWire disk or tethered
Storage capacity	Over 850 images on a 40 GByte disk
Battery type	Powered from the camera battery (Li-Ion)
Capture rate	1.5 seconds / image including preview
Colour display	Colour display – OLED 2.2"
Histogram feedback	Yes (on camera LCD and rear monitor)
Acoustic feedback	Yes
File format	Compressed Adobe DNG (Lossless JPEG)
Software	Adobe Photoshop CS or FlexColor
Platform support	Mac OSX, NT, 2000, XP
Host connection type	FireWire 800 (IEEE1394b)
Operating temperature	0 – 45 ˚C / 32 – 113 ˚F

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BODY — Default setting (Standard Profile)

Exp.mode		A (Aperture priority)	
LM mode		Centre weighted	
Exp. adjust		0	
Focus mode		AF-S	
Drive mode		S	
Flash sync		Normal (beginning of exp.)	
Flash adjust		0	
Self timer	delay	10 sec	
	Sequence	Mirror up / Delay	
	Mirror mode	Mirror goes down	
Bracketing	Frames	3	
	Sequence	Normal - over - under	
	EV diff	0,5 EV	
Interval timer	Frames	3	
	Interval	0 min 30 sec	
Custom options	1	Standby timeout	10 sec
	2	EV increment	0,5 EV
	3	User button function	None
	4	AE-Lock button function	AE-lock
	5	Stop Down button function	Stop down
	6	M.UP button function	Mirror up
	7	Control wheel direction	CW
	8	Flash ready exposure lock	Yes
	9	Lens exposure lock	Yes
	10	Out of range exposure lock	No
	11	True exposure	On
	12	Spot mode	Normal
	13	Focus aid in MF	Half press
	14	AF assist light	Ext. Flash
	15	Rear wheel quick adjust	Yes
	16	Control lock	All controls
	17	Beeper	On
	18	Show histogram	Yes
	19	Interval & Selftimer	Exit
	20	AE-lock & Quick adjust	Exp. reset
	21	Show EV	Yes
	22	Show ISO	Yes
	23	Bracket param. in Manual	Shutter speed
	24	Aperture control in Manual	Front wheel
Imprint	type	Enhanced exposure information	
	text	Hasselblad H2D	

SENSOR UNIT — Default settings

Not yet defined

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Problems, Equipment Care, Service & Guarantee

The H2D is a very sophisticated camera that relies on much information being passed and processed to and from each modular unit to produce the correct behaviour. It is therefore essential that reasonable care is taken in attaching, detaching and storing the viewfinder, lenses, extension tubes, etc to ensure that the databus connections are not damaged or soiled in any way. Also when lifting or handling the camera try to always use the grip or strap and avoid holding the camera just by the sensor unit or viewfinder. Warning messages are normally easily addressed and remedied but 'Error' messages require further attention as they denote a fault, temporary or otherwise. You should methodically investigate the situation to see for example whether the recent attachment of an accessory has coincided with the appearance of an error message. Standard procedure is to detach and re-attach the viewfinder, lens etc ensuring that they are positioned firmly and correctly to see whether the problem disappears. Failing that, removal of the battery grip for about ten seconds or so will reset the camera's processors. Persistent error messages might well signify a more complex problem and you are advised to contact your nearest Hasselblad Authorized Service Center for advice. As well as the error message, a description of the camera's behaviour and an account of what action you were trying to take when it happened could be beneficial. Also, please remember that the Center will almost certainly want to inspect all of the items that were involved when the error message first appeared.

In certain situations, it is possible that the camera can be affected by a discharge of static electricity particularly if the area around the control buttons on the grip comes into contact with a conductive cord or material that is connected to earth, directly or indirectly (a lighting stand, for example). This might temporarily deactivate the camera though it does not cause any damage. Press the red ON.OFF button on the grip again to reactivate the camera.

If a problem does occur you are advised not to attempt any repairs yourself. Some service operations require very sophisticated instruments to check, measure and adjust and there is a real danger of creating more problems than solving them if such attempts are made in any other way.

EQUIPMENT CARE

A Hasselblad camera is designed to withstand the rigours of professional use in most environments. To avoid the possibility of damage however, it should be protected from harsh conditions and in particular avoid oil fumes, steam, humid conditions and dust.

***Extremes of temperature:** High temperatures can have an adverse effect equipment. Try to avoid frequent and severe temperature changes. Be particularly careful in humid environments. Allow the equipment to acclimatize before assembly. Try to ensure the storage conditions in such environments are as dry as possible.*

***Dust and grit:** Take care to prevent dust and grit from getting into your equipment. In coastal areas take measures to protect your equipment from sand and salt water spray. Dust on the lens glass and focusing screen can be removed with a blower brush or very soft lens brush if necessary. Smears on the lens glass should be treated with great caution. In some cases they may be removed with a high quality lens cleaning solution on a tissue but be careful not to scratch the lens or touch any of the glass surfaces with your fingers. If in any doubt, do not attempt to clean lens glass surfaces yourself but allow a "Hasselblad Authorized Service Center" to treat them.*

***Impact:** Your equipment can be damaged by severe physical shocks so practical protective precautions should be taken. Some form of protective case or camera bag is advised for transportation.*

***Loss:** Hasselblad equipment is much sought after and you should take obvious steps to prevent theft. Never leave it visible in an unattended car, for example. Separate and specific camera insurance cover should be considered by professional users.*

SERVICE

Return your equipment to a service centre for occasional checking and preventive maintenance to ensure optimal reliability. You can easily keep a check on service intervals by looking under 'Info' in the menu. If your camera is used constantly and intensively, regular periodic check-ups are recommended at one of the "Hasselblad Authorized Service Centers". They have the expert staff and specialised equipment necessary to ensure that your equipment remains in perfect working order.

GUARANTEE

Provided that you bought your equipment from an authorized Hasselblad outlet, it is covered by an international guarantee for one year. The guarantee document and a registration card are supplied with the camera. Keep the guarantee document carefully, but fill in the registration card and return it to your Hasselblad distributor.

CAUTION

- *Keep all equipment and accessories out of the reach of small children.*
- *Do not place heavy objects on the equipment.*
- *Do not use the batteries except as specified.*
- *Use only the batteries specified for use with the camera.*
- *Remove the batteries when cleaning the camera or if you intend to leave the camera unused for a long period.*
- *If you use spare (standard or rechargeable) battery packs be particularly careful to use the supplied protective cap when storing. There is a potential fire risk if the contacts are short circuited across a conductive object (such as keys in a pocket, for example).*
- *Take particular care when working with strobe / studio flash units to prevent damage to equipment and personal injury.*
- *Do not attempt to open the sensor unit.*
- *Keep your sensor unit and all other computer equipment away from moisture. If your sensor unit becomes wet, disconnect from power and allow it to dry before attempting to operate again.*
- *Never cover the ventilation openings on the sensor unit.*
- *Always replace the protective CCD/filter cover when the sensor unit is not connected to your camera--the exposed CCD and filter are vulnerable to damage.*
- *Never try to remove the glass IR filter from the front of the CCD; this will probably ruin the CCD. If dust manages to get between the CCD and IR filter, please contact your Hasselblad dealer for assistance.*

Disposal

If you need to dispose of the sensor unit, ImageBank-CF and/or batteries, please do so in an environmentally friendly manner at the local waste plant/ recycling centre or similar.

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H2D

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